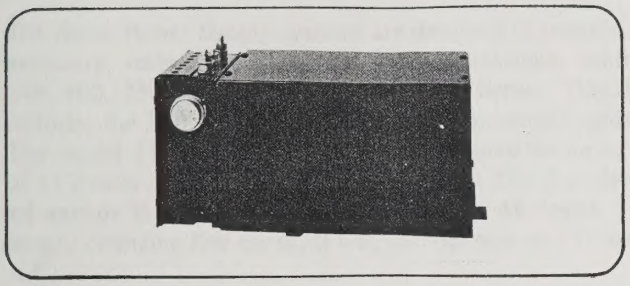
POWER SUPPLIES FOR SWAN TRANSCEIVERS

Models 240, 400, 250 Series, 350 Series, and 500 Series.
Also 300 Series and 400 Series Commercial Models.



COMPLETE 12 VOLT D.C. SUPPLY

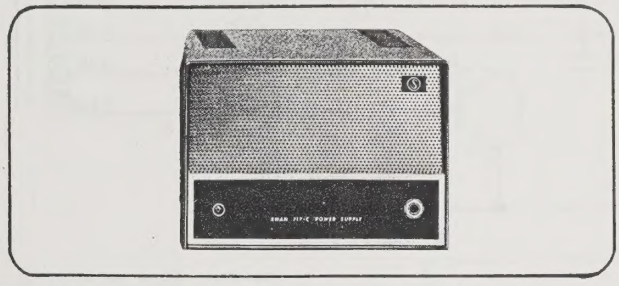
MODEL 14-117

Consists of a 117-X A.C. supply and a 14-C D.C. Converter. For 12-13.5 volt mobile or portable operation. Includes 8 ft. cable and plug pre-wired for connection to transceiver, primary cables, circuit breaker, and mounting hardware. 5 in. wide, 5 in. high, 12-1/4 in. long. Weight: 16-1/2 lbs.

Net Price . . . . . **$118.**

MODEL 14-230. Same as above but with 230-X A.C. unit.
Net Price . . . . . **$124.**

Model 14-117 and 14-230 D.C. supplies will operate on A.C. input by detaching the 14-C unit and attaching an A.C. line cord, thus providing added versatility. 117 volt and 230 volt A.C. line cords available at $8 each.



COMPLETE MATCHING A.C. SUPPLY

MODEL 117-XC

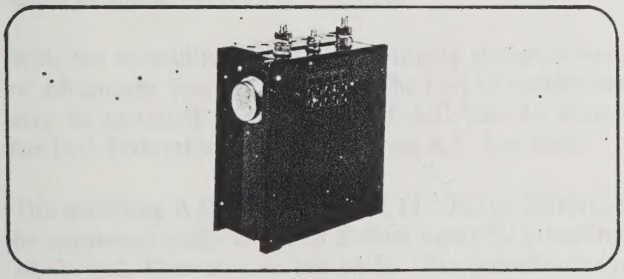
Consists of a 117-X power supply in a cabinet which matches Swan transceiver. Includes speaker, phone jack, and indicator light. Come with A.C. line cord, and power cable ready to plug into transceiver. 8 in. wide, 5-1/4 in. high, 11 in. deep. Weight: 21 lbs.

Net Price . . . . . **$95.**

MODEL 230-XC. Same as above but with 230-X supply for dual 117 or 230 volt A.C. input. Comes with 230 volt line cord, unless otherwise specified.

Net Price . . . . . **$99.**

Model 117-XC and 230-XC A.C. supplies will operate on 12-13.5 volts D.C. input by attaching a 14-C Converter Unit in place of the A.C. line cord, thus providing added versatility for portable or emergency operation from a 12 volt battery.



D.C. CONVERTER MODULE

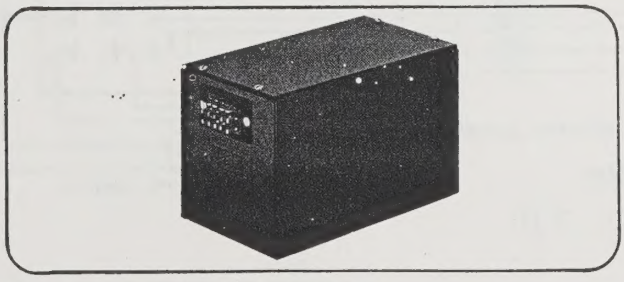
MODEL 14-C

Transistorized Unit attaches to 117-X or 230-X power supply, converting them to 12-13.5 volt D.C. input for mobile or portable operation. For negative ground systems. Includes cables, plugs, circuit breaker, and mounting hardware. Average current drain: 9 amps. receive. 22 amps. transmit.

Dimensions: 5 x 5 x 3-1/2 in. Weight: 2-1/2 lbs.

Net Price . . . . . **$59.**

MODEL 14-CP. Same as above but for positive ground system. Available on special order . . . . . **$59.**



BASIC A.C. POWER SUPPLY

MODEL 117-X

Operates with 117-volts, 50-60 cycle input. Supplies all voltages required to operate Swan transceiver. Does not include matching cabinet, speaker or cables. Average power consumption: 125 watts, receive; 325 watts, transmit.

Dimensions: 5 x 5 x 8-3/4 in. Weight: 14 lbs.

Net Price . . . . . **$59.**

MODEL 230-X. Same as above but with dual primary winding for either 117 or 230 volt 50-60 cycle input . **$65.**

A.C. line cords for above supplies, with fuse, ready to plug in. Specify for 117 or 230 volts, each . . . . . **$8.**

8 ft. 10 conductor cable with pre-wired plug for connecting A.C. supply to transceiver, each . . . . . **$6.**

GENERAL DESCRIPTION:

The Swan Power Supply systems are designed to provide all necessary voltages required by Swan Transceiver models 240, 400, 250 Series, 350 Series, and 500 Series. This also includes the 300 Series and 400 Series commercial models. The model 117-X basic A.C. supply is designed for an input of 117 volts at 50 or 60 cycles. The model 230-X is identical except that it operates with 230 volts AC input. By simply changing line cords, it will also operate on 117 volts A.C.

For fixed station use, the 117-X or 230-X is installed in a cabinet which matches the Swan transceivers. This cabinet also contains a speaker, phone jack, and indicator light. The complete combination is designated as model 117-XC or 230-XC. The A.C. line cord plugs into the back of the supply. In the 230-XC, choice of 117 or 230 volts input is made by selecting line cords.

12 VOLT D.C. OPERATION:

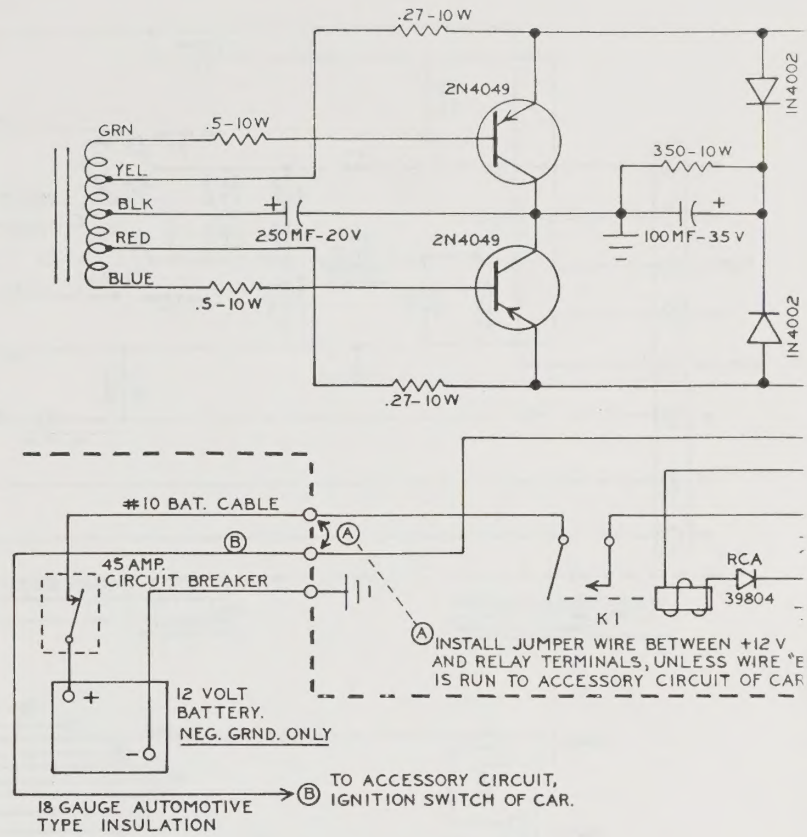
A D.C. Converter attaches to the back of the A.C. supply, and converts it for 12-13.5 volts D.C. input. The model 14-C D.C. Converter is for negative ground systems, the most common type. (For positive ground systems, the model 14-CP D.C. Converter is available on special order.) Combination of an A.C. supply with a 14-C Converter is designated as model 14-117 or 14-230 depending on which A.C. supply is used. The positive ground models are designated as model 14P-117 or 14P-230.

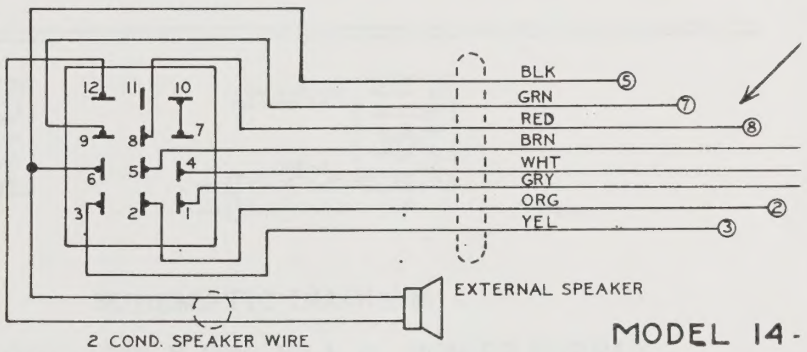
With the versatility of this power supply design, a number of advantages become apparent. The 14-117 mobile supply may be operated from a 117 volt A.C. line by detaching the D.C. Converter and plugging in an A.C. line cord.

The matching A.C. supply, model 117-XC or 230-XC, may be converted easily to 12-13.5 volts input by attaching the 14-C D.C. Converter to the back. This provides for portable or emergency operation from a 12 volt battery. There may also be times when it will be desirable to operate temporarily in an automobile, such as during a vacation trip, field day, or emergencies. The 117-XC can be set on the floor or front seat, and with the 14-C attached it becomes a 12-volt power supply, complete with speaker.

SPECIFICATIONS:

Power Rating: 250 watts average, 600 watts peak.
Input:
Model 117-X: 117 volts nominal, 50-60 cycles.
Model 230-X: 230 volts or 117 volts, 50-60 cycles.
Model 14-C : 13.5 volts D.C. nominal, 40 amps. peak.





MODEL 14-
D.C. CONVERT

11-16

Output:
800 volts at 250 ma. average, 700 ma. peak.
275 volts at 150 ma. continuous.
110 volts negative bias, at 100 ma.
12 volts D.C. at 200 ma., relay supply.
12.6 volts A.C. at 5.5 amps. (with A.C. input only)
Battery Drain with Swan Transceiver
Rec: 3.5 amps. Trans: 16 amps. average, 40 amps. peak, plus 5.5 amps. for vacuum tube heaters.

The D.C. Converter uses two power transistors for switching in a flip-flop oscillator circuit. A large portion of the cost in this unit is in the transistors where no compromise has been made. They are rated at 60 amperes, with a 45 volt rating.

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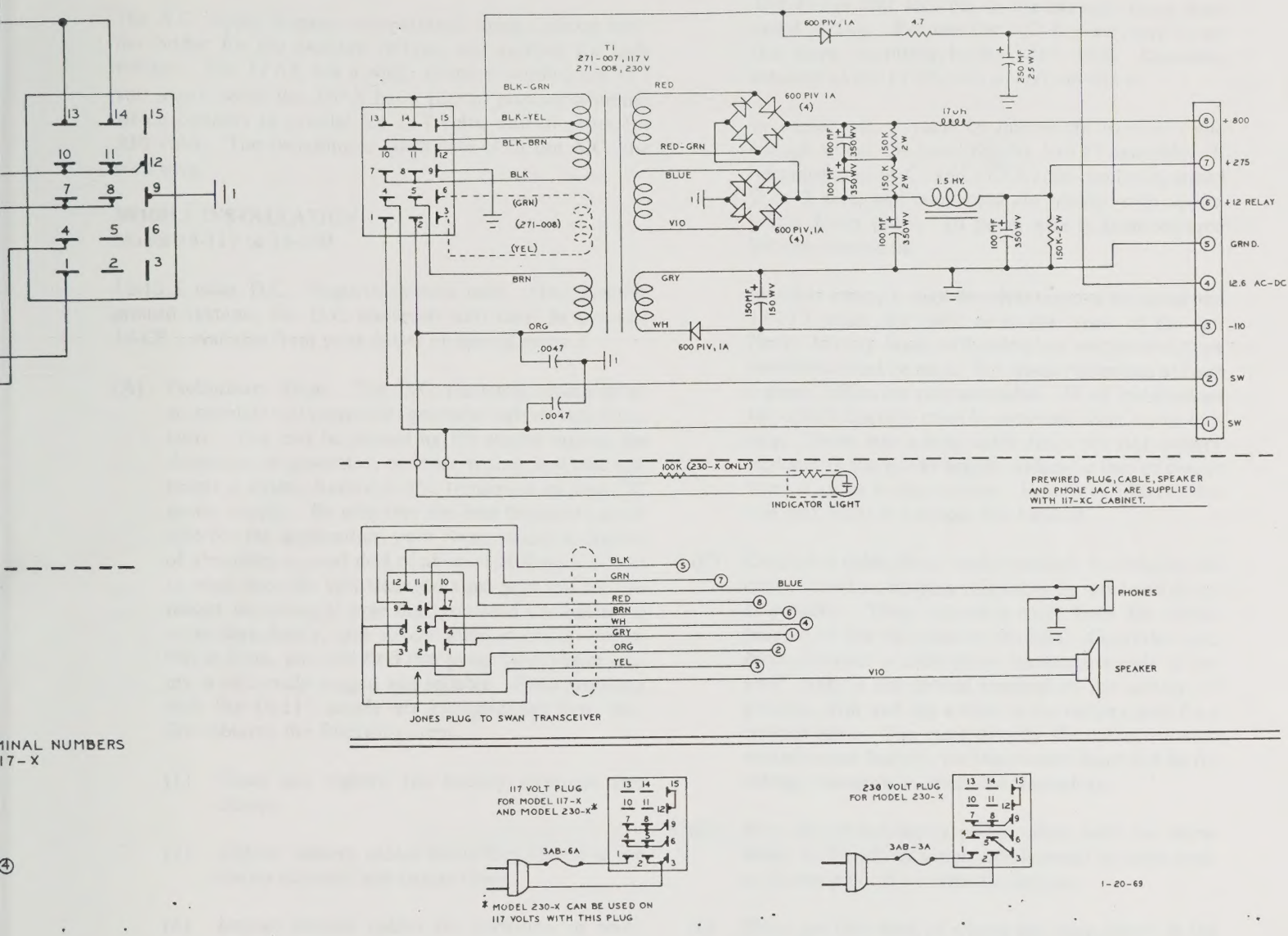


SCHEMATIC DIAGRAM

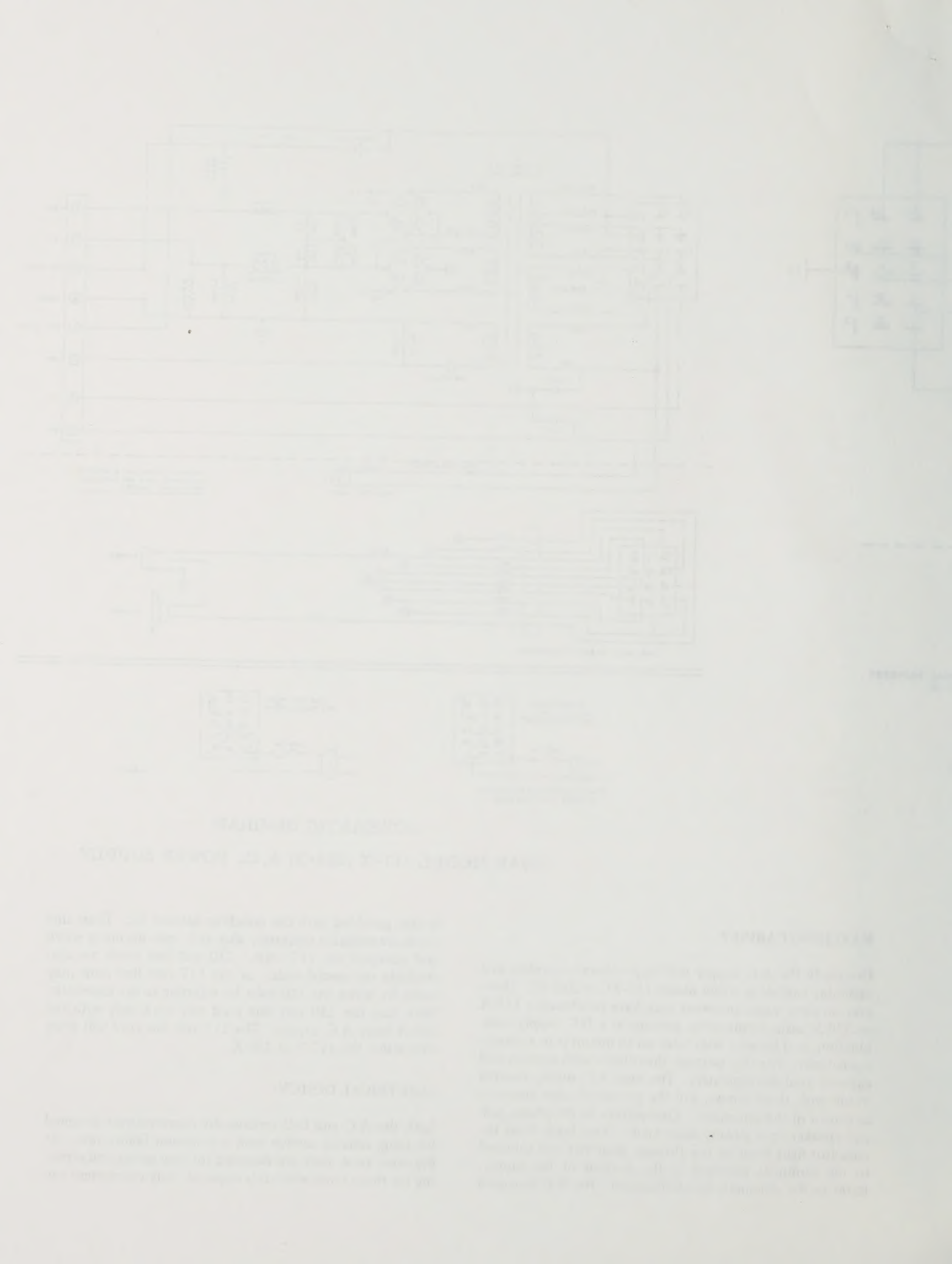
SWAN MODEL 117-X (230-X) A.C. POWER SUPPLY

MATCHING CABINET:

Ordinarily the A.C. supply will be purchased complete in a matching cabinet as either model 117-XC or 230-XC. However, in some cases an owner may have purchased a 117-X or 230-X basic supply only, perhaps in a D.C. supply combination, and he may wish later on to mount it in a matching cabinet. For this purpose the cabinet with speaker and cables is available separately. The basic A.C. supply mounts inside with three screws, and the pre-wired cable connects as shown in the schematic. Connections to the phone jack and speaker have already been made. Two leads from the indicator light must be run through grommet and soldered to the terminals provided at the bottom of the supply. Refer to the schematic for clarification. The A.C. line cord is also provided with the matching cabinet kit. These line cords are available separately also, and come normally wired and stamped for 117 volts. 230 volt line cords are also available on special order, or the 117 volt line cord may easily be wired for 230 volts by referring to the schematic. Note that the 230 volt line cord will work only with the 230-X basic A.C. supply. The 117 volt line cord will work with either the 117-X or 230-X.

ELECTRICAL DESIGN:

Both the A.C. and D.C. sections are conservatively designed for long, reliable service with a minimum failure rate. At the same time, they are designed for easy access and servicing for those times when it is required. Any component can



be readily checked out and replaced in a matter of moments. The D.C. Converter and A.C. supply can be detached quickly from one another and tested individually, thus isolating the source of trouble.

The A.C. supply is quite conventional, using a silicon rectifier bridge for the medium voltage, and another for high voltage. The 117-X has a single primary winding for 117 volt input, while the 230-X has a pair of primary windings which connect in parallel for 117 volts, and in series for 230 volts. The switching is taken care of in the A.C. line cord plug.

MOBILE INSTALLATION
Model 14-117 or 14-230

12-13.5 volts D.C., Negative ground only. (For positive ground systems, the D.C. converter unit must be a model 14-CP , available from your dealer on special order.)

(A) **Preliminary Steps.** The D.C. electrical system in an automobile will sometimes generate high voltage transients. This can be caused by the starter motor, the alternator or generator, or loose wiring, and can represent a serious hazard to the transistors in your DC power supply. By selecting the best transistors available for the application, your Swan supply is capable of absorbing a good deal of abuse, but there is a limit to what even the best transistors can take and for this reason we strongly urge that you read the following notes completely, and follow them carefully. When this is done, you will find that your Swan power supply is extremely rugged and reliable. Field problems with the 14-117 supply are exceptionally low. But, first observe the following steps.

(1) Clean and tighten the battery terminals and clamps.

(2) Tighten battery cables where they attach to the starter solenoid and engine block.

(3) Inspect battery cables for corrosion or wear. Replace them if they look questionable.

(4) Check battery condition frequently. If the cells do not hold a similar charge or water level, replace the battery.

(5) Check alternator (or generator), and regulator connections for tightness. Also, primary ignition wiring, horn wiring, lights, etc.

(6) Measure the charging voltage from the alternator. Often the regulator is misadjusted, and the voltage setting may be excessive. It should not read more than 14.5 volts at normal engine speeds.

(B) Locate the power supply under the hood in a reasonably clear spot as close to the battery as is practical, and away from the engine. Particularly, keep it clear of the engine manifold, and away from the high tension ignition wiring. On many cars there will be a good spot at the front and to one side of the radiator. The power supply may mount in any position, and is quite well protected against normal splashing and dirt. The 117-X unit attaches to the car with three sheet metal screws. Remove the 117-X cover, and locate the three mounting holes. The 14-C Converter attaches to the 117-X with a machine screw.

In some cars it may be impossible to find room enough under the hood for the 14-117 assembly. If necessary, the 14-C and 117-X units can be separated 2 or 3 feet, and connected electrically with appropriate Jones plugs. 10 gauge wire is then required between terminals.

In other cases, it may be advantageous to install the 14-117 under the dash, or in the trunk of the car. Heavy battery leads with adequate automotive type insulation must be used. For trunk mounting, at least 6 gauge cables are recommended. In all installations the circuit breaker must be mounted close to the battery. Never run a long cable from the hot battery terminal to the power supply without a fuse or circuit breaker close to the battery. Failure to observe this rule will result in a serious fire hazard!

(C) Connect a cable from the hot battery terminal to the circuit breaker, keeping this cable as short and direct as possible. Then connect a cable from the circuit breaker to the +12 post on the 14-C Converter unit. Next, connect a cable from the negative post of the 14-C unit to the ground terminal of the battery. If possible, drill and tap a hole in the battery post for a contact stud. The more directly the cables are connected to the battery, the less chance there will be for voltage transients to reach the transistors.

(D) Run the 10 conductor power cable from the transceiver to the power supply and connect by color code as illustrated in the schematic diagram.

(E) There are two ways of wiring the relay circuit in the 14-C Converter. The simplest method is to connect a wire jumper from the relay terminal post to the +12 terminal on the 14-C . These posts are just an inch apart, and an 18 gauge bare jumper is sufficient. However, when connected this way, it will be possible for anyone to turn on the transceiver at any time, and for the transceiver to be accidentally left on, running the battery down.

The second wiring method provides for connection to the accessory circuits of the car, so that the ignition key is required in order to turn on the transceiver. To do this an 18 gauge insulated wire must be run from the 14-C relay terminal to the accessory circuit under the dash of the car. This wire may be run alongside the 10 conductor power cable which goes to the transceiver. The accessory circuit will be found on one terminal of the ignition switch. Your service garage can be helpful in locating this. Otherwise, it may be easier to locate the 12 volt input line to the car radio, and splice into this line. Since the 14-C

relay draws very little current, tapping into the car radio line will not matter, regardless of which side the car radio fuse is on.

(F) **Speaker Connections.** The two conductor lead coming from the Jones plug goes to an external speaker with 3 to 4 ohm voice coil. This speaker may be one already installed in the dash of the car or under the dash, and a selector switch may be installed to switch the speaker over from the car radio to the transceiver. An easier arrangement, however, is to install a 3 x 5 in. speaker inside the transceiver. The 500-C provides a mounting place on the left side, with terminal lugs on top of the chassis for connection to the speaker. One side of the speaker voice coil connects to the insulated terminal, and the other side connects to the ground terminal.

VOLTAGE REGULATION, MOBILE OPERATION

In D.C. to D.C. converters designed for mobile operation of Transceivers, it is important to note that output voltages will be related directly to the D.C. input voltage. The Swan model 14-117 supply is designed so that when input voltage is 13.5 volts, output voltages will be at nominal ratings, the same as with 117 volts A.C. input. Therefore, when Transceiver Tuning is performed without the engine running, it must be recognized that operating voltages will be considerably lower than normal, and meter readings will be less than with the engine running. In some cases, input voltage without the engine running may be as low as 11.5 volts, resulting in still lower meter readings. If the D.C. supply were designed to deliver normal output voltages at 11.5 or 12 volts input, then they would be dangerously high with the engine running.

The wire size and length of run from the battery to the 14-C Converter is also an important factor governing output voltage from the power supply. The voltage drop across these leads should be kept reasonably small. 10 gauge wire is supplied with the 14-C Converter, and is heavy enough for average runs of 3 to 4 feet. For longer runs it would be advisable to use 8 gauge, while for trunk mounted power supplies 6 gauge or even 4 gauge is recommended. It should be noted, however, that the really important factor in determining wire size is how much input voltage is delivered to the 14-C module during average voice modulation, when some 16 to 18 amperes are being drawn through the wire. In TUNE position considerably more current is drawn, as much as 35 to 40 amperes, and the voltage drop may be quite high. However, this is not a particular handicap; in fact, there is a definite safety factor in having a rather poorly regulated input which drops when you switch to TUNE. There is no reason to be unduly concerned about this drop, since the electrolytic capacitors in the power supply have ample storage capacity to provide good dynamic regulation during voice modulation.

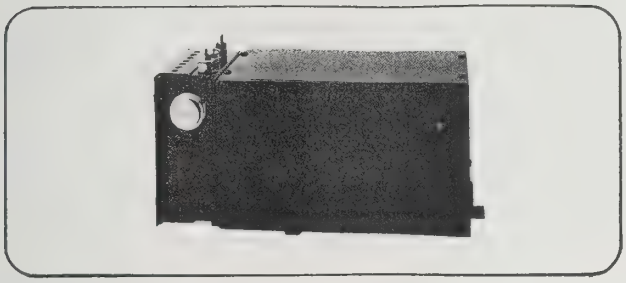
To summarize: The best way of determining if the battery leads are large enough is to measure input voltage at the 14-C terminals while voice modulating. If the voltage drops less than 1/2 volt when speaking normally into the microphone, the leads are heavy enough. If the drop is more than 1/2 volt, the leads should be larger. Finally, do not expect full operating power unless the engine is running, and the generator is charging properly.

POWER SUPPLY WARRANTY POLICY

The normal guarantee on your Swan power supply is for a period of 90 days from date of purchase, and covers all components, material and workmanship. In the case of transistor failure, however, the warranty on them will be void if inspection proves that high transient voltages from the automobile were responsible. We will do all in our power to be fair and just in this determination. The warranty card must be filled out and mailed to the factory within 10 days from date of purchase. Do not ship a unit to the factory for servicing without prior authorization. Check with your dealer first, as he may be in a position to handle the service work more quickly. This warranty is void if the equipment has been misused or damaged.

POWER SUPPLIES FOR SWAN TRANSCEIVERS

Models 240, 400, 250 Series, 350 Series, and 500 Series.
Also 300 Series and 400 Series Commercial Models.



COMPLETE 12 VOLT D.C. SUPPLY

MODEL 14-117

Consists of a 117-X A.C. supply and a 14-C D.C. Converter. For 12-13.5 volt mobile or portable operation. Includes 8 ft. cable and plug pre-wired for connection to transceiver, primary cables, circuit breaker, and mounting hardware. 5 in. wide, 5 in. high, 12-1/4 in. long. Weight: 16-1/2 lbs.
Net Price . . . . . **$118.**

MODEL 14-230. Same as above but with 230-X A.C. unit.
Net Price . . . . . **$124.**

Model 14-117 and 14-230 D.C. supplies will operate on A.C. input by detaching the 14-C unit and attaching an A.C. line cord, thus providing added versatility. 117 volt and 230 volt A.C. line cords available at $8 each.

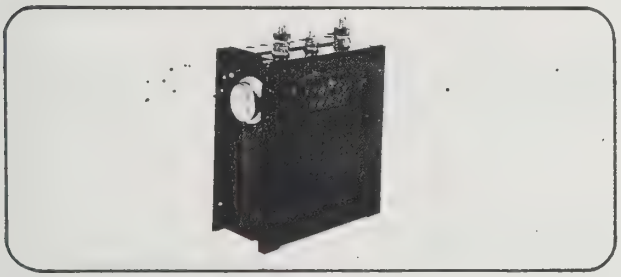
COMPLETE MATCHING A.C. SUPPLY

MODEL 117-XC

Consists of a 117-X power supply in a cabinet which matches Swan transceiver. Includes speaker, phone jack, and indicator light. Come with A.C. line cord, and power cable ready to plug into transceiver. 8 in. wide, 5-1/4 in. high, 11 in. deep. Weight: 21 lbs.
Net Price . . . . . $95.

MODEL 230-XC. Same as above but with 230-X supply for dual 117 or 230 volt A.C. input. Comes with 230 volt line cord, unless otherwise specified.
Net Price . . . . . $99.

Model 117-XC and 230-XC A.C. supplies will operate on 12-13.5 volts D.C. input by attaching a 14-C Converter Unit in place of the A.C. line cord, thus providing added versatility for portable or emergency operation from a 12 volt battery.

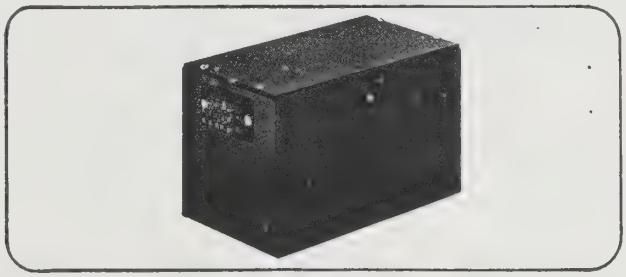


D.C. CONVERTER MODULE

MODEL 14-C

Transistorized Unit attaches to 117-X or 230-X power supply, converting them to 12-13.5 volt D.C. input for mobile or portable operation. For negative ground systems. Includes cables, plugs, circuit breaker, and mounting hardware. Average current drain: 9 amps. receive. 22 amps. transmit.
Dimensions: 5 x 5 x 3-1/2 in. Weight: 2-1/2 lbs.
Net Price . . . . . $59.

MODEL 14-CP. Same as above but for positive ground system. Available on special order . . . . . **$59.**



BASIC A.C. POWER SUPPLY

MODEL 117-X

Operates with 117-volts, 50-60 cycle input. Supplies all voltages required to operate Swan transceiver. Does not include matching cabinet, speaker or cables. Average power consumption: 125 watts, receive; 325 watts, transmit.
Dimensions: 5 x 5 x 8-3/4 in. Weight: 14 lbs.
Net Price . . . . . $59.

MODEL 230-X. Same as above but with dual primary winding for either 117 or 230 volt 50-60 cycle input . $65.

A.C. line cords for above supplies, with fuse, ready to plug in. Specify for 117 or 230 volts, each . . . . . $8.

8 ft. 10 conductor cable with pre-wired plug for connecting A.C. supply to transceiver, each . . . . . $6.

GENERAL DESCRIPTION:

The Swan Power Supply systems are designed to provide all necessary voltages required by Swan Transceiver models 240, 400, 250 Series, 350 Series, and 500 Series. This also includes the 300 Series and 400 Series commercial models. The model 117-X basic A.C. supply is designed for an input of 117 volts at 50 or 60 cycles. The model 230-X is identical except that it operates with 230 volts AC input. By simply changing line cords, it will also operate on 117 volts A.C.

For fixed station use, the 117-X or 230-X is installed in a cabinet which matches the Swan transceivers. This cabinet also contains a speaker, phone jack, and indicator light. The complete combination is designated as model 117-XC or 230-XC. The A.C. line cord plugs into the back of the supply. In the 230-XC, choice of 117 or 230 volts input is made by selecting line cords.

12 VOLT D.C. OPERATION:

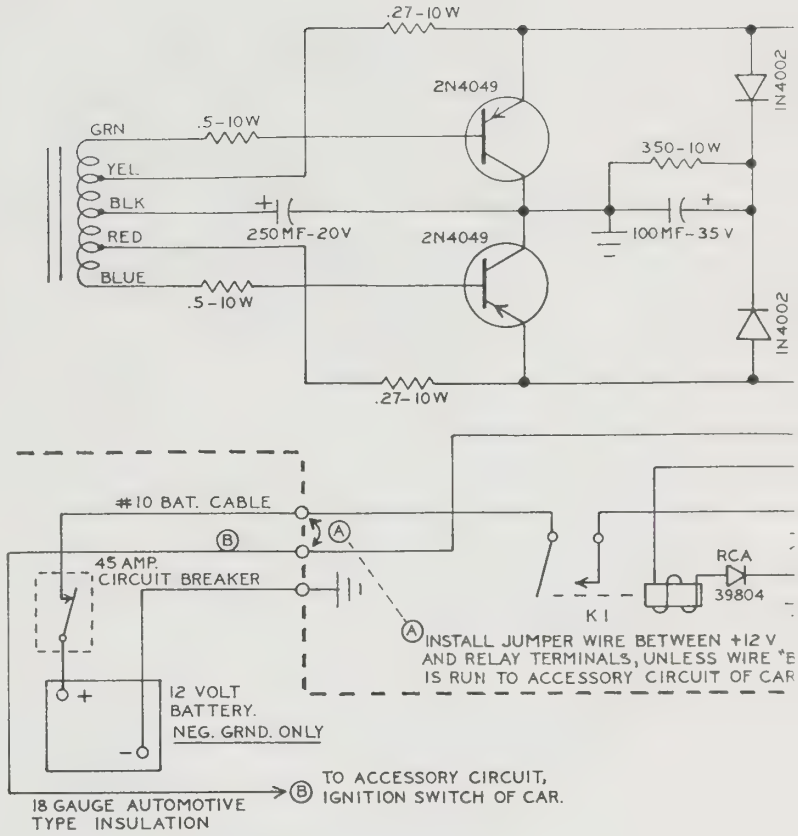
A D.C. Converter attaches to the back of the A.C. supply, and converts it for 12-13.5 volts D.C. input. The model 14-C D.C. Converter is for negative ground systems, the most common type. (For positive ground systems, the model 14-CP D.C. Converter is available on special order.) Combination of an A.C. supply with a 14-C Converter is designated as model 14-117 or 14-230 depending on which A.C. supply is used. The positive ground models are designated as model 14P-117 or 14P-230.

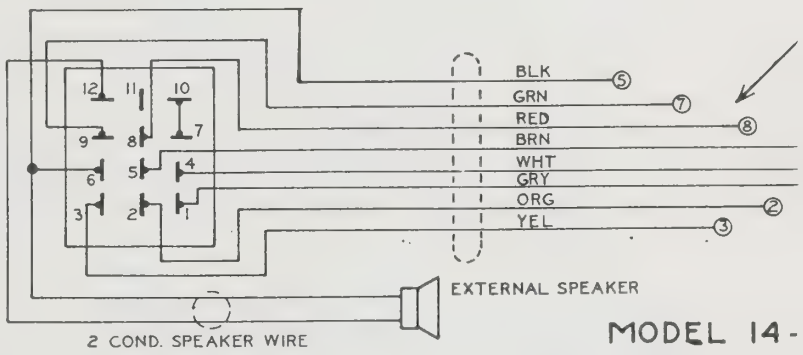
With the versatility of this power supply design, a number of advantages become apparent. The 14-117 mobile supply may be operated from a 117 volt A.C. line by detaching the D.C. Converter and plugging in an A.C. line cord.

The matching A.C. supply, model 117-XC or 230-XC, may be converted easily to 12-13.5 volts input by attaching the 14-C D.C. Converter to the back. This provides for portable or emergency operation from a 12 volt battery. There may also be times when it will be desirable to operate temporarily in an automobile, such as during a vacation trip, field day, or emergencies. The 117-XC can be set on the floor or front seat, and with the 14-C attached it becomes a 12-volt power supply, complete with speaker.

SPECIFICATIONS:

Power Rating: 250 watts average, 600 watts peak.
Input:
- Model 117-X: 117 volts nominal, 50-60 cycles.
- Model 230-X: 230 volts or 117 volts, 50-60 cycles.
- Model 14-C : 13.5 volts D.C. nominal, 40 amps. peak.





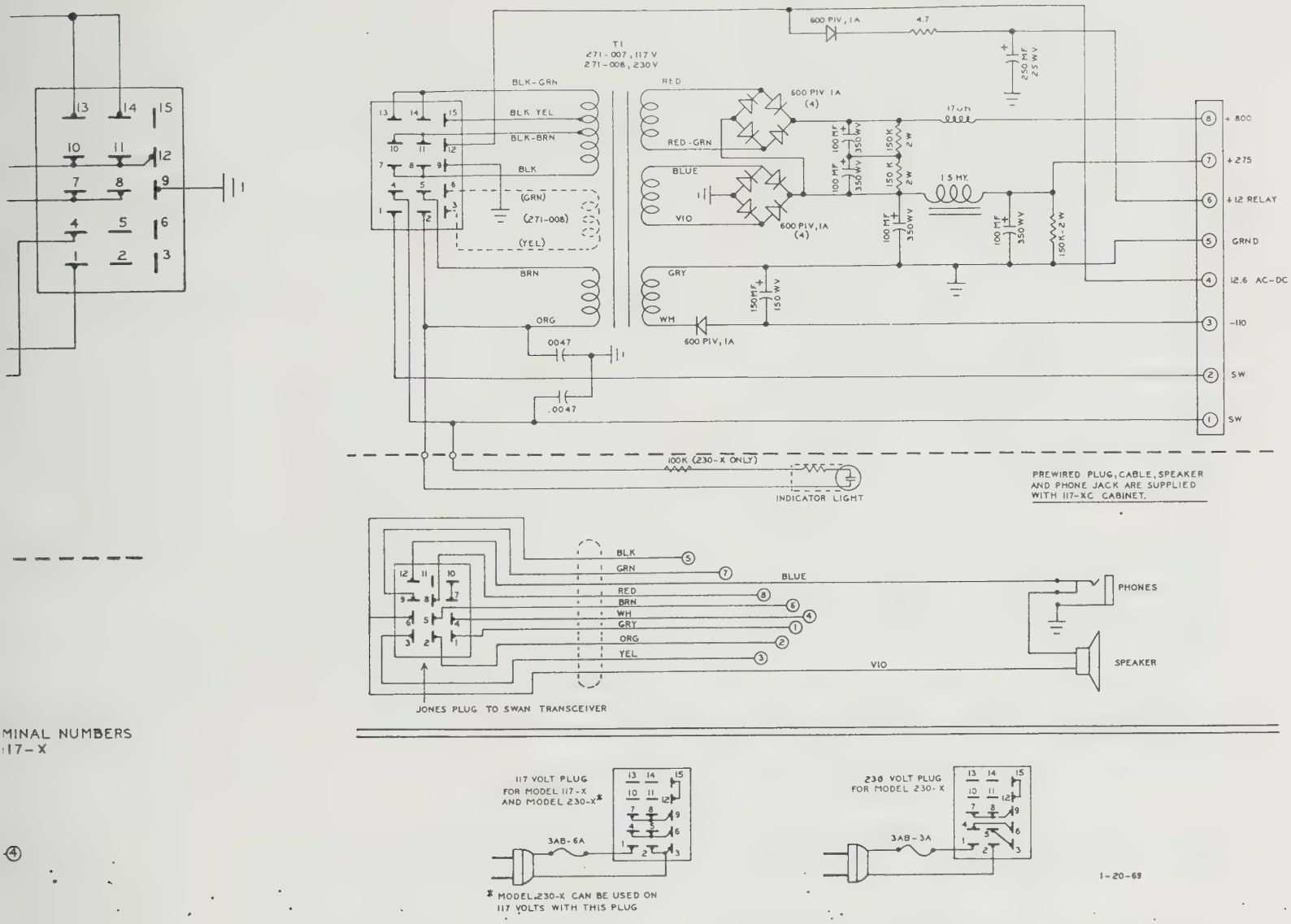
MODEL 14-
D.C. CONVERT

11-16

Output:
- 800 volts at 250 ma. average, 700 ma. peak.
- 275 volts at 150 ma. continuous.
- 110 volts negative bias, at 100 ma.
- 12 volts D.C. at 200 ma., relay supply.
- 12.6 volts A.C. at 5.5 amps. (with A.C. input only)

Battery Drain with Swan Transceiver
- Rec: 3.5 amps. Trans: 16 amps. average, 40 amps. peak, plus 5.5 amps. for vacuum tube heaters.

The D.C. Converter uses two power transistors for switching in a flip-flop oscillator circuit. A large portion of the cost in this unit is in the transistors where no compromise has been made. They are rated at 60 amperes, with a 45 volt rating.



SCHEMATIC DIAGRAM

SWAN MODEL 117-X (230-X) A. C. POWER SUPPLY

MATCHING CABINET:

Ordinarily the A.C. supply will be purchased complete in a matching cabinet as either model 117-XC or 230-XC. However, in some cases an owner may have purchased a 117-X or 230-X basic supply only, perhaps in a D.C. supply combination, and he may wish later on to mount it in a matching cabinet. For this purpose the cabinet with speaker and cables is available separately. The basic A.C. supply mounts inside with three screws, and the pre-wired cable connects as shown in the schematic. Connections to the phone jack and speaker have already been made. Two leads from the indicator light must be run through grommet and soldered to the terminals provided at the bottom of the supply. Refer to the schematic for clarification. The A.C. line cord is also provided with the matching cabinet kit. These line cords are available separately also, and come normally wired and stamped for 117 volts. 230 volt line cords are also available on special order, or the 117 volt line cord may easily be wired for 230 volts by referring to the schematic. Note that the 230 volt line cord will work only with the 230-X basic A.C. supply. The 117 volt line cord will work with either the 117-X or 230-X.

ELECTRICAL DESIGN:

Both the A.C. and D.C. sections are conservatively designed for long, reliable service with a minimum failure rate. At the same time, they are designed for easy access and servicing for those times when it is required. Any component can

be readily checked out and replaced in a matter of moments. The D.C. Converter and A.C. supply can be detached quickly from one another and tested individually, thus isolating the source of trouble.

The A.C. supply is quite conventional, using a silicon rectifier bridge for the medium voltage, and another for high voltage. The 117-X has a single primary winding for 117 volt input, while the 230-X has a pair of primary windings which connect in parallel for 117 volts, and in series for 230 volts. The switching is taken care of in the A.C. line cord plug.

MOBILE INSTALLATION
Model 14-117 or 14-230

12-13.5 volts D.C., Negative ground only. (For positive ground systems, the D.C. converter unit must be a model 14-CP , available from your dealer on special order.)

(A) **Preliminary Steps.** The D.C. electrical system in an automobile will sometimes generate high voltage transients. This can be caused by the starter motor, the alternator or generator, or loose wiring, and can represent a serious hazard to the transistors in your DC power supply. By selecting the best transistors available for the application, your Swan supply is capable of absorbing a good deal of abuse, but there is a limit to what even the best transistors can take and for this reason we strongly urge that you read the following notes completely, and follow them carefully. When this is done, you will find that your Swan power supply is extremely rugged and reliable. Field problems with the 14-117 supply are exceptionally low. But, first observe the following steps.

(1) Clean and tighten the battery terminals and clamps.

(2) Tighten battery cables where they attach to the starter solenoid and engine block.

(3) Inspect battery cables for corrosion or wear. Replace them if they look questionable.

(4) Check battery condition frequently. If the cells do not hold a similar charge or water level, replace the battery.

(5) Check alternator (or generator), and regulator connections for tightness. Also, primary ignition wiring, horn wiring, lights, etc.

(6) Measure the charging voltage from the alternator. Often the regulator is misadjusted, and the voltage setting may be excessive. It should not read more than 14.5 volts at normal engine speeds.

(B) Locate the power supply under the hood in a reasonably clear spot as close to the battery as is practical, and away from the engine. Particularly, keep it clear of the engine manifold, and away from the high tension ignition wiring. On many cars there will be a good spot at the front and to one side of the radiator. The power supply may mount in any position, and is quite well protected against normal splashing and dirt. The 117-X unit attaches to the car with three sheet metal screws. Remove the 117-X cover, and locate the three mounting holes. The 14-C Converter attaches to the 117-X with a machine screw.

In some cars it may be impossible to find room enough under the hood for the 14-117 assembly. If necessary, the 14-C and 117-X units can be separated 2 or 3 feet, and connected electrically with appropriate Jones plugs. 10 gauge wire is then required between terminals.

In other cases, it may be advantageous to install the 14-117 under the dash, or in the trunk of the car. Heavy battery leads with adequate automotive type insulation must be used. For trunk mounting, at least 6 gauge cables are recommended. In all installations the circuit breaker must be mounted close to the battery. Never run a long cable from the hot battery terminal to the power supply without a fuse or circuit breaker close to the battery. Failure to observe this rule will result in a serious fire hazard!

(C) Connect a cable from the hot battery terminal to the circuit breaker, keeping this cable as short and direct as possible. Then connect a cable from the circuit breaker to the +12 post on the 14-C Converter unit. Next, connect a cable from the negative post of the 14-C unit to the ground terminal of the battery. If possible, drill and tap a hole in the battery post for a contact stud. The more directly the cables are connected to the battery, the less chance there will be for voltage transients to reach the transistors.

(D) Run the 10 conductor power cable from the transceiver to the power supply and connect by color code as illustrated in the schematic diagram.

(E) There are two ways of wiring the relay circuit in the 14-C Converter. The simplest method is to connect a wire jumper from the relay terminal post to the +12 terminal on the 14-C . These posts are just an inch apart, and an 18 gauge bare jumper is sufficient. However, when connected this way, it will be possible for anyone to turn on the transceiver at any time, and for the transceiver to be accidentally left on, running the battery down.

The second wiring method provides for connection to the accessory circuits of the car, so that the ignition key is required in order to turn on the transceiver. To do this an 18 gauge insulated wire must be run from the 14-C relay terminal to the accessory circuit under the dash of the car. This wire may be run alongside the 10 conductor power cable which goes to the transceiver. The accessory circuit will be found on one terminal of the ignition switch. Your service garage can be helpful in locating this. Otherwise, it may be easier to locate the 12 volt input line to the car radio, and splice into this line. Since the 14-C

relay draws very little current, tapping into the car radio line will not matter, regardless of which side the car radio fuse is on.

(F) **Speaker Connections.** The two conductor lead coming from the Jones plug goes to an external speaker with 3 to 4 ohm voice coil. This speaker may be one already installed in the dash of the car or under the dash, and a selector switch may be installed to switch the speaker over from the car radio to the transceiver. An easier arrangement, however, is to install a 3 x 5 in. speaker inside the transceiver. The 500-C provides a mounting place on the left side, with terminal lugs on top of the chassis for connection to the speaker. One side of the speaker voice coil connects to the insulated terminal, and the other side connects to the ground terminal.

VOLTAGE REGULATION, MOBILE OPERATION

In D.C. to D.C. converters designed for mobile operation of Transceivers, it is important to note that output voltages will be related directly to the D.C. input voltage. The Swan model 14-117 supply is designed so that when input voltage is 13.5 volts, output voltages will be at nominal ratings, the same as with 117 volts A.C. input. Therefore, when Transceiver Tuning is performed without the engine running, it must be recognized that operating voltages will be considerably lower than normal, and meter readings will be less than with the engine running. In some cases, input voltage without the engine running may be as low as 11.5 volts, resulting in still lower meter readings. If the D.C. supply were designed to deliver normal output voltages at 11.5 or 12 volts input, then they would be dangerously high with the engine running.

The wire size and length of run from the battery to the 14-C Converter is also an important factor governing output voltage from the power supply. The voltage drop across these leads should be kept reasonably small. 10 gauge wire is supplied with the 14-C Converter, and is heavy enough for average runs of 3 to 4 feet. For longer runs it would be advisable to use 8 gauge, while for trunk mounted power supplies 6 gauge or even 4 gauge is recommended. It should be noted, however, that the really important factor in determining wire size is how much input voltage is delivered to the 14-C module during average voice modulation, when some 16 to 18 amperes are being drawn through the wire. In TUNE position considerably more current is drawn, as much as 35 to 40 amperes, and the voltage drop may be quite high. However, this is not a particular handicap; in fact, there is a definite safety factor in having a rather poorly regulated input which drops when you switch to TUNE. There is no reason to be unduly concerned about this drop, since the electrolytic capacitors in the power supply have ample storage capacity to provide good dynamic regulation during voice modulation.

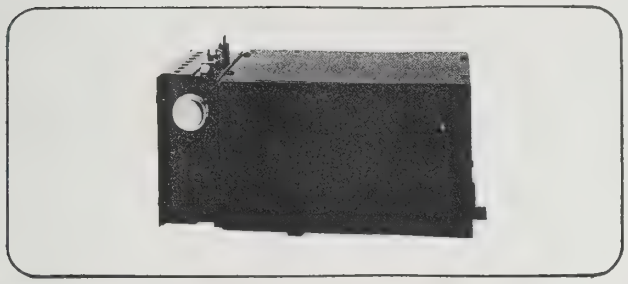
To summarize: The best way of determining if the battery leads are large enough is to measure input voltage at the 14-C terminals while voice modulating. If the voltage drops less than 1/2 volt when speaking normally into the microphone, the leads are heavy enough. If the drop is more than 1/2 volt, the leads should be larger. Finally, do not expect full operating power unless the engine is running, and the generator is charging properly.

POWER SUPPLY WARRANTY POLICY

The normal guarantee on your Swan power supply is for a period of 90 days from date of purchase, and covers all components, material and workmanship. In the case of transistor failure, however, the warranty on them will be void if inspection proves that high transient voltages from the automobile were responsible. We will do all in our power to be fair and just in this determination. The warranty card must be filled out and mailed to the factory within 10 days from date of purchase. Do not ship a unit to the factory for servicing without prior authorization. Check with your dealer first, as he may be in a position to handle the service work more quickly. This warranty is void if the equipment has been misused or damaged.

POWER SUPPLIES FOR SWAN TRANSCEIVERS

Models 240, 400, 250 Series, 350 Series, and 500 Series. Also 300 Series and 400 Series Commercial Models.



COMPLETE 12 VOLT D.C. SUPPLY

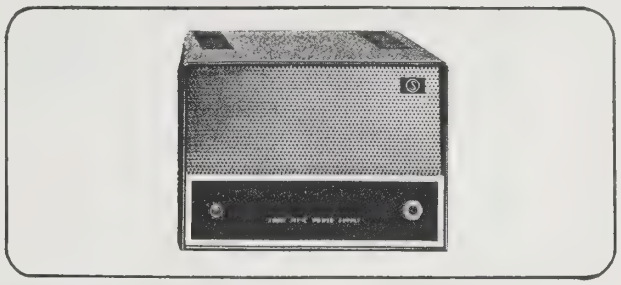
MODEL 14-117

Consists of a 117-X A.C. supply and a 14-C D.C. Converter. For 12-13.5 volt mobile or portable operation. Includes 8 ft. cable and plug pre-wired for connection to transceiver, primary cables, circuit breaker, and mounting hardware. 5 in. wide, 5 in. high, 12-1/4 in. long. Weight: 16-1/2 lbs.

Net Price . . . . . $118.

MODEL 14-230. Same as above but with 230-X A.C. unit.
Net Price . . . . . $124.

Model 14-117 and 14-230 D.C. supplies will operate on A.C. input by detaching the 14-C unit and attaching an A.C. line cord, thus providing added versatility. 117 volt and 230 volt A.C. line cords available at $8 each.



COMPLETE MATCHING A.C. SUPPLY

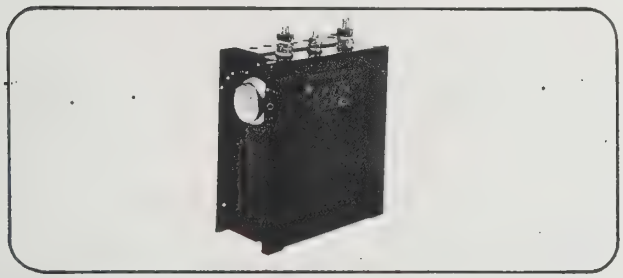
MODEL 117-XC

Consists of a 117-X power supply in a cabinet which matches Swan transceiver. Includes speaker, phone jack, and indicator light. Come with A.C. line cord, and power cable ready to plug into transceiver. 8 in. wide, 5-1/4 in. high, 11 in. deep. Weight: 21 lbs.

Net Price . . . . . $95.

MODEL 230-XC. Same as above but with 230-X supply for dual 117 or 230 volt A.C. input. Comes with 230 volt line cord, unless otherwise specified.
Net Price . . . . . $99.

Model 117-XC and 230-XC A.C. supplies will operate on 12-13.5 volts D.C. input by attaching a 14-C Converter Unit in place of the A.C. line cord, thus providing added versatility for portable or emergency operation from a 12 volt battery.

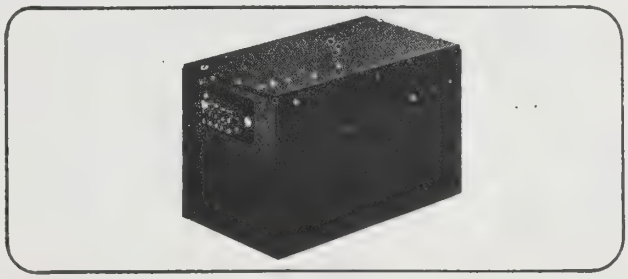


D.C. CONVERTER MODULE

MODEL 14-C

Transistorized Unit attaches to 117-X or 230-X power supply, converting them to 12-13.5 volt D.C. input for mobile or portable operation. For negative ground systems. Includes cables, plugs, circuit breaker, and mounting hardware. Average current drain: 9 amps. receive. 22 amps. transmit.
Dimensions: 5 x 5 x 3-1/2 in. Weight: 2-1/2 lbs.
Net Price . . . . . $59.

MODEL 14-CP. Same as above but for positive ground system. Available on special order . . . . . $59.



BASIC A.C. POWER SUPPLY

MODEL 117-X

Operates with 117-volts, 50-60 cycle input. Supplies all voltages required to operate Swan transceiver. Does not include matching cabinet, speaker or cables. Average power consumption: 125 watts, receive; 325 watts, transmit.
Dimensions: 5 x 5 x 8-3/4 in. Weight: 14 lbs.
Net Price . . . . . $59.

MODEL 230-X. Same as above but with dual primary winding for either 117 or 230 volt 50-60 cycle input . $65.

A.C. line cords for above supplies, with fuse, ready to plug in. Specify for 117 or 230 volts, each . . . . . $8.

8 ft. 10 conductor cable with pre-wired plug for connecting A.C. supply to transceiver, each . . . . . $6.

GENERAL DESCRIPTION:

The Swan Power Supply systems are designed to provide all necessary voltages required by Swan Transceiver models 240, 400, 250 Series, 350 Series, and 500 Series. This also includes the 300 Series and 400 Series commercial models. The model 117-X basic A.C. supply is designed for an input of 117 volts at 50 or 60 cycles. The model 230-X is identical except that it operates with 230 volts AC input. By simply changing line cords, it will also operate on 117 volts A.C.

For fixed station use, the 117-X or 230-X is installed in a cabinet which matches the Swan transceivers. This cabinet also contains a speaker, phone jack, and indicator light. The complete combination is designated as model 117-XC or 230-XC. The A.C. line cord plugs into the back of the supply. In the 230-XC, choice of 117 or 230 volts input is made by selecting line cords.

12 VOLT D.C. OPERATION:

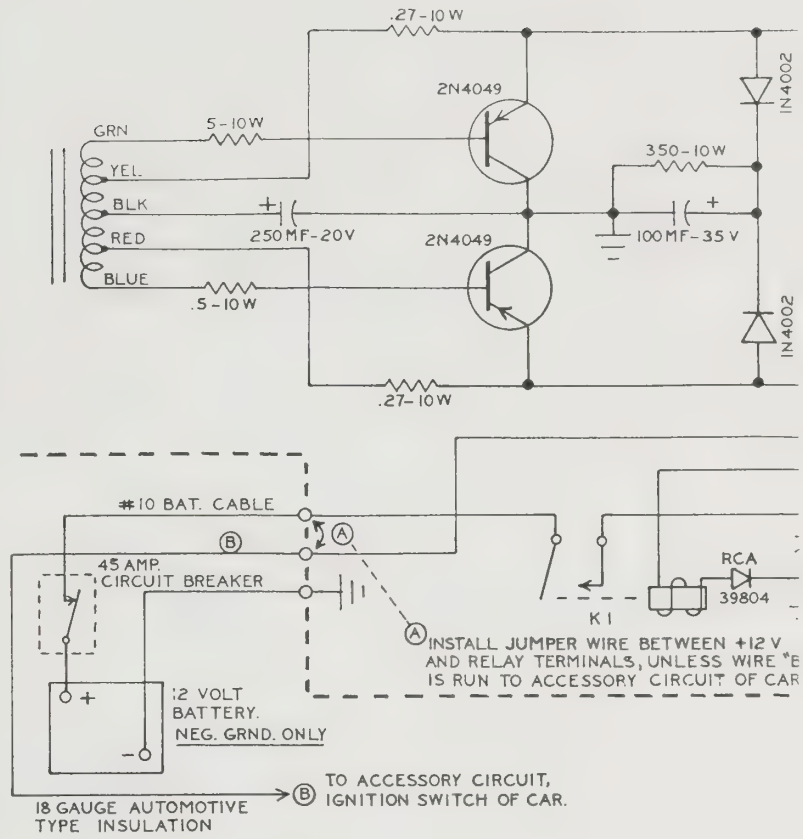
A D.C. Converter attaches to the back of the A.C. supply, and converts it for 12-13.5 volts D.C. input. The model 14-C D.C. Converter is for negative ground systems, the most common type. (For positive ground systems, the model 14-CP D.C. Converter is available on special order.) Combination of an A.C. supply with a 14-C Converter is designated as model 14-117 or 14-230 depending on which A.C. supply is used. The positive ground models are designated as model 14P-117 or 14P-230.

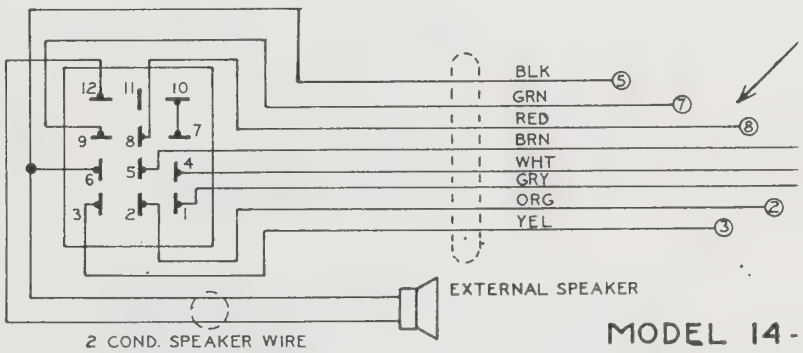
With the versatility of this power supply design, a number of advantages become apparent. The 14-117 mobile supply may be operated from a 117 volt A.C. line by detaching the D.C. Converter and plugging in an A.C. line cord.

The matching A.C. supply, model 117-XC or 230-XC, may be converted easily to 12-13.5 volts input by attaching the 14-C D.C. Converter to the back. This provides for portable or emergency operation from a 12 volt battery. There may also be times when it will be desirable to operate temporarily in an automobile, such as during a vacation trip, field day, or emergencies. The 117-XC can be set on the floor or front seat, and with the 14-C attached it becomes a 12-volt power supply, complete with speaker.

SPECIFICATIONS:

Power Rating: 250 watts average, 600 watts peak.
Input:
Model 117-X: 117 volts nominal, 50-60 cycles.
Model 230-X: 230 volts or 117 volts, 50-60 cycles.
Model 14-C : 13.5 volts D.C. nominal, 40 amps. peak.



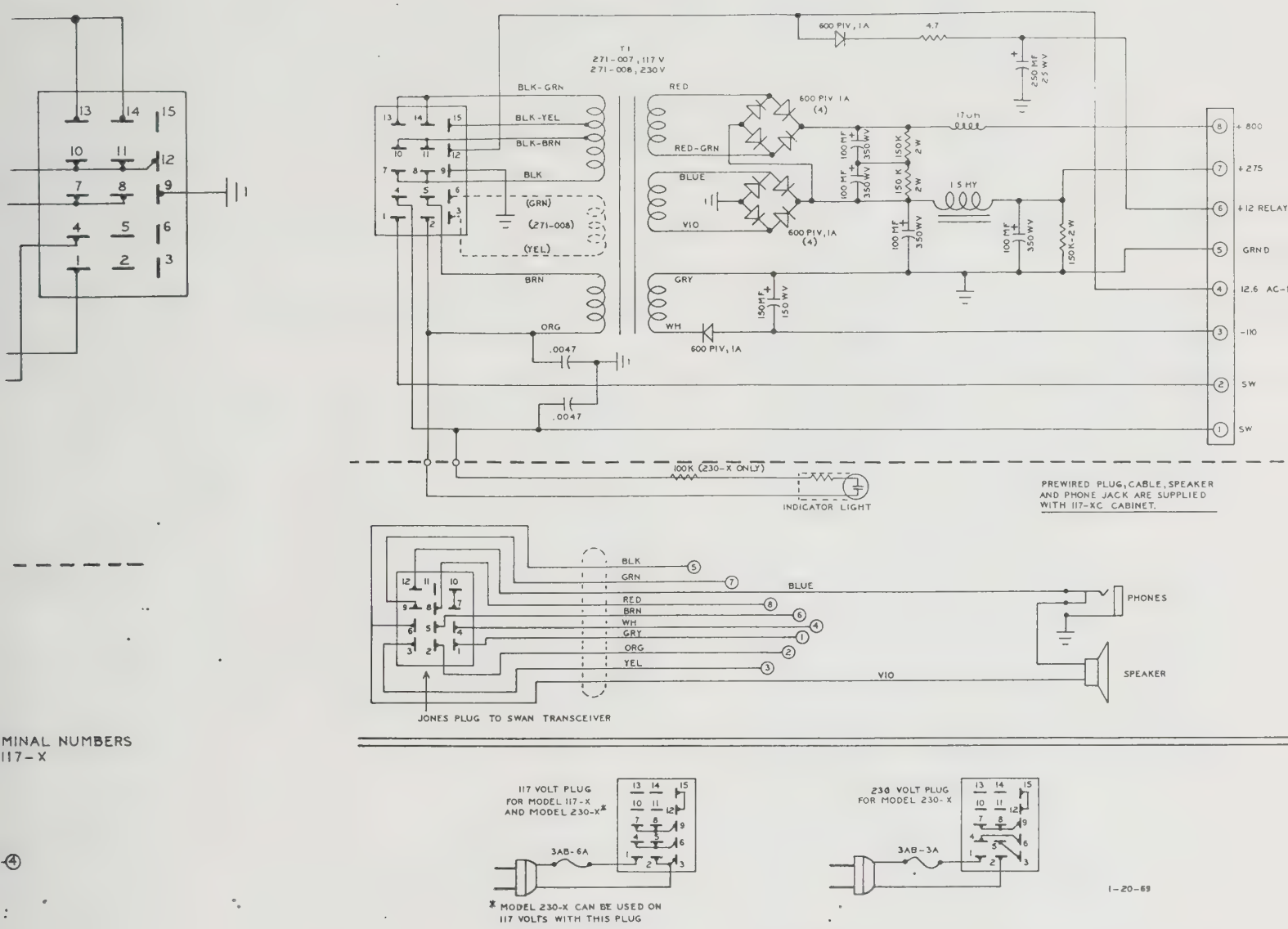


MODEL 14-
D.C. CONVERT

11-16

Output:
800 volts at 250 ma. average, 700 ma. peak.
275 volts at 150 ma. continuous.
110 volts negative bias, at 100 ma.
12 volts D.C. at 200 ma., relay supply.
12.6 volts A.C. at 5.5 amps. (with A.C. input only)
Battery Drain with Swan Transceiver
Rec: 3.5 amps. Trans: 16 amps. average, 40 amps. peak, plus 5.5 amps. for vacuum tube heaters.

The D.C. Converter uses two power transistors for switching in a flip-flop oscillator circuit. A large portion of the cost in this unit is in the transistors where no compromise has been made. They are rated at 60 amperes, with a 45 volt rating.



SCHEMATIC DIAGRAM

SWAN MODEL 117-X (230-X) A.C. POWER SUPPLY

MATCHING CABINET:

Ordinarily the A.C. supply will be purchased complete in a matching cabinet as either model 117-XC or 230-XC. However, in some cases an owner may have purchased a 117-X or 230-X basic supply only, perhaps in a D.C. supply combination, and he may wish later on to mount it in a matching cabinet. For this purpose the cabinet with speaker and cables is available separately. The basic A.C. supply mounts inside with three screws, and the pre-wired cable connects as shown in the schematic. Connections to the phone jack and speaker have already been made. Two leads from the indicator light must be run through grommet and soldered to the terminals provided at the bottom of the supply. Refer to the schematic for clarification. The A.C. line cord is also provided with the matching cabinet kit. These line cords are available separately also, and come normally wired and stamped for 117 volts. 230 volt line cords are also available on special order, or the 117 volt line cord may easily be wired for 230 volts by referring to the schematic. Note that the 230 volt line cord will work only with the 230-X basic A.C. supply. The 117 volt line cord will work with either the 117-X or 230-X.

ELECTRICAL DESIGN:

Both the A.C. and D.C. sections are conservatively designed for long, reliable service with a minimum failure rate. At the same time, they are designed for easy access and servicing for those times when it is required. Any component can

be readily checked out and replaced in a matter of moments. The D.C. Converter and A.C. supply can be detached quickly from one another and tested individually, thus isolating the source of trouble.

The A.C. supply is quite conventional, using a silicon rectifier bridge for the medium voltage, and another for high voltage. The 117-X has a single primary winding for 117 volt input, while the 230-X has a pair of primary windings which connect in parallel for 117 volts, and in series for 230 volts. The switching is taken care of in the A.C. line cord plug.

MOBILE INSTALLATION
Model 14-117 or 14-230

12-13.5 volts D.C., Negative ground only. (For positive ground systems, the D.C. converter unit must be a model 14-CP , available from your dealer on special order.)

(A) **Preliminary Steps.** The D.C. electrical system in an automobile will sometimes generate high voltage transients. This can be caused by the starter motor, the alternator or generator, or loose wiring, and can represent a serious hazard to the transistors in your DC power supply. By selecting the best transistors available for the application, your Swan supply is capable of absorbing a good deal of abuse, but there is a limit to what even the best transistors can take and for this reason we strongly urge that you read the following notes completely, and follow them carefully. When this is done, you will find that your Swan power supply is extremely rugged and reliable. Field problems with the 14-117 supply are exceptionally low. But, first observe the following steps.

(1) Clean and tighten the battery terminals and clamps.

(2) Tighten battery cables where they attach to the starter solenoid and engine block.

(3) Inspect battery cables for corrosion or wear. Replace them if they look questionable.

(4) Check battery condition frequently. If the cells do not hold a similar charge or water level, replace the battery.

(5) Check alternator (or generator), and regulator connections for tightness. Also, primary ignition wiring, horn wiring, lights, etc.

(6) Measure the charging voltage from the alternator. Often the regulator is misadjusted, and the voltage setting may be excessive. It should not read more than 14.5 volts at normal engine speeds.

(B) Locate the power supply under the hood in a reasonably clear spot as close to the battery as is practical, and away from the engine. Particularly, keep it clear of the engine manifold, and away from the high tension ignition wiring. On many cars there will be a good spot at the front and to one side of the radiator. The power supply may mount in any position, and is quite well protected against normal splashing and dirt. The 117-X unit attaches to the car with three sheet metal screws. Remove the 117-X cover, and locate the three mounting holes. The 14-C Converter attaches to the 117-X with a machine screw.

In some cars it may be impossible to find room enough under the hood for the 14-117 assembly. If necessary, the 14-C and 117-X units can be separated 2 or 3 feet, and connected electrically with appropriate Jones plugs. 10 gauge wire is then required between terminals.

In other cases, it may be advantageous to install the 14-117 under the dash, or in the trunk of the car. Heavy battery leads with adequate automotive type insulation must be used. For trunk mounting, at least 6 gauge cables are recommended. In all installations the circuit breaker must be mounted close to the battery. Never run a long cable from the hot battery terminal to the power supply without a fuse or circuit breaker close to the battery. Failure to observe this rule will result in a serious fire hazard!

(C) Connect a cable from the hot battery terminal to the circuit breaker, keeping this cable as short and direct as possible. Then connect a cable from the circuit breaker to the +12 post on the 14-C Converter unit. Next, connect a cable from the negative post of the 14-C unit to the ground terminal of the battery. If possible, drill and tap a hole in the battery post for a contact stud. The more directly the cables are connected to the battery, the less chance there will be for voltage transients to reach the transistors.

(D) Run the 10 conductor power cable from the transceiver to the power supply and connect by color code as illustrated in the schematic diagram.

(E) There are two ways of wiring the relay circuit in the 14-C Converter. The simplest method is to connect a wire jumper from the relay terminal post to the +12 terminal on the 14-C . These posts are just an inch apart, and an 18 gauge bare jumper is sufficient. However, when connected this way, it will be possible for anyone to turn on the transceiver at any time, and for the transceiver to be accidentally left on, running the battery down.

The second wiring method provides for connection to the accessory circuits of the car, so that the ignition key is required in order to turn on the transceiver. To do this an 18 gauge insulated wire must be run from the 14-C relay terminal to the accessory circuit under the dash of the car. This wire may be run alongside the 10 conductor power cable which goes to the transceiver. The accessory circuit will be found on one terminal of the ignition switch. Your service garage can be helpful in locating this. Otherwise, it may be easier to locate the 12 volt input line to the car radio, and splice into this line. Since the 14-C

relay draws very little current, tapping into the car radio line will not matter, regardless of which side the car radio fuse is on.

(F) **Speaker Connections.** The two conductor lead coming from the Jones plug goes to an external speaker with 3 to 4 ohm voice coil. This speaker may be one already installed in the dash of the car or under the dash, and a selector switch may be installed to switch the speaker over from the car radio to the transceiver. An easier arrangement, however, is to install a 3 x 5 in. speaker inside the transceiver. The 500-C provides a mounting place on the left side, with terminal lugs on top of the chassis for connection to the speaker. One side of the speaker voice coil connects to the insulated terminal, and the other side connects to the ground terminal.

VOLTAGE REGULATION, MOBILE OPERATION

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The wire size and length of run from the battery to the 14-C Converter is also an important factor governing output voltage from the power supply. The voltage drop across these leads should be kept reasonably small. 10 gauge wire is supplied with the 14-C Converter, and is heavy enough for average runs of 3 to 4 feet. For longer runs it would be advisable to use 8 gauge, while for trunk mounted power supplies 6 gauge or even 4 gauge is recommended. It should be noted, however, that the really important factor in determining wire size is how much input voltage is delivered to the 14-C module during average voice modulation, when some 16 to 18 amperes are being drawn through the wire. In TUNE position considerably more current is drawn, as much as 35 to 40 amperes, and the voltage drop may be quite high. However, this is not a particular handicap; in fact, there is a definite safety factor in having a rather poorly regulated input which drops when you switch to TUNE. There is no reason to be unduly concerned about this drop, since the electrolytic capacitors in the power supply have ample storage capacity to provide good dynamic regulation during voice modulation.

To summarize: The best way of determining if the battery leads are large enough is to measure input voltage at the 14-C terminals while voice modulating. If the voltage drops less than 1/2 volt when speaking normally into the microphone, the leads are heavy enough. If the drop is more than 1/2 volt, the leads should be larger. Finally, do not expect full operating power unless the engine is running, and the generator is charging properly.

POWER SUPPLY WARRANTY POLICY

The normal guarantee on your Swan power supply is for a period of 90 days from date of purchase, and covers all components, material and workmanship. In the case of transistor failure, however, the warranty on them will be void if inspection proves that high transient voltages from the automobile were responsible. We will do all in our power to be fair and just in this determination. The warranty card must be filled out and mailed to the factory within 10 days from date of purchase. Do not ship a unit to the factory for servicing without prior authorization. Check with your dealer first, as he may be in a position to handle the service work more quickly. This warranty is void if the equipment has been misused or damaged.

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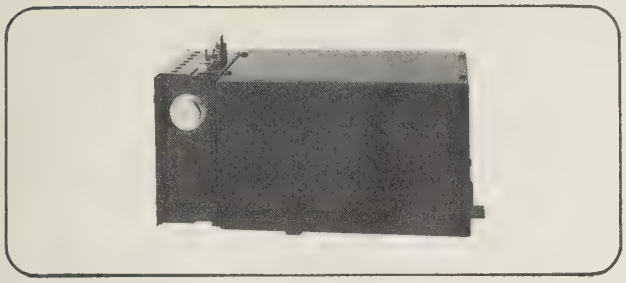


COMPLETE 12 VOLT D.C. SUPPLY

MODEL 14-117

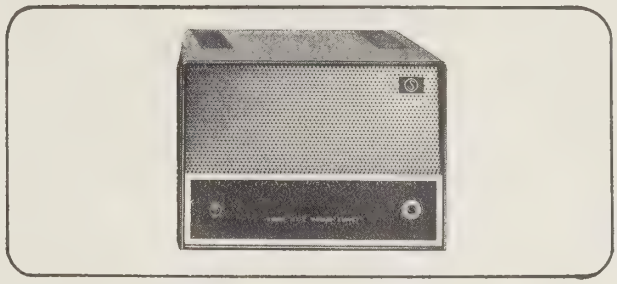
Consists of a 117-X A.C. supply and a 14-C D.C. Converter. For 12-13.5 volt mobile or portable operation. Includes 8 ft. cable and plug pre-wired for connection to transceiver, primary cables, circuit breaker, and mounting hardware. 5 in. wide, 5 in. high, 12-1/4 in. long. Weight: 16-1/2 lbs.

Net Price . . . . . **$118.**

MODEL 14-230. Same as above but with 230-X A.C. unit.

Net Price . . . . . **$124.**

Model 14-117 and 14-230 D.C. supplies will operate on A.C. input by detaching the 14-C unit and attaching an A.C. line cord, thus providing added versatility. 117 volt and 230 volt A.C. line cords available at $8 each.



COMPLETE MATCHING A.C. SUPPLY

MODEL 117-XC

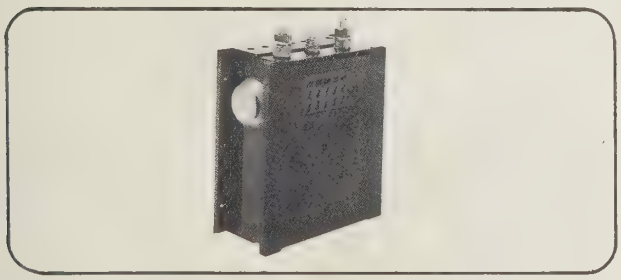
Consists of a 117-X power supply in a cabinet which matches Swan transceiver. Includes speaker, phone jack, and indicator light. Come with A.C. line cord, and power cable ready to plug into transceiver. 8 in. wide, 5-1/4 in. high, 11 in. deep. Weight: 21 lbs.

Net Price . . . . . **$95.**

MODEL 230-XC. Same as above but with 230-X supply for dual 117 or 230 volt A.C. input. Comes with 230 volt line cord, unless otherwise specified.

Net Price . . . . . **$99.**

Model 117-XC and 230-XC A.C. supplies will operate on 12-13.5 volts D.C. input by attaching a 14-C Converter Unit in place of the A.C. line cord, thus providing added versatility for portable or emergency operation from a 12 volt battery.



D.C. CONVERTER MODULE

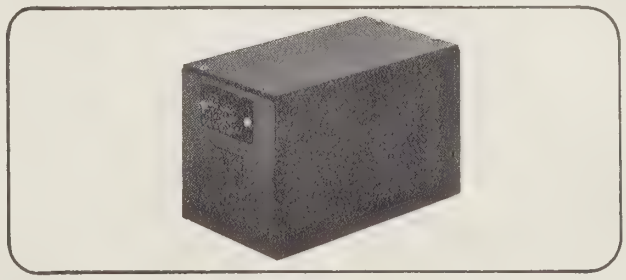
MODEL 14-C

Transistorized Unit attaches to 117-X or 230-X power supply, converting them to 12-13.5 volt D.C. input for mobile or portable operation. For negative ground systems. Includes cables, plugs, circuit breaker, and mounting hardware. Average current drain: 9 amps. receive. 22 amps. transmit.

Dimensions: 5 x 5 x 3-1/2 in. Weight: 2-1/2 lbs.

Net Price . . . . . **$59.**

MODEL 14-CP. Same as above but for positive ground system. Available on special order . . . . . **$59.**



BASIC A.C. POWER SUPPLY

MODEL 117-X

Operates with 117-volts, 50-60 cycle input. Supplies all voltages required to operate Swan transceiver. Does not include matching cabinet, speaker or cables. Average power consumption: 125 watts, receive; 325 watts, transmit.

Dimensions: 5 x 5 x 8-3/4 in. Weight: 14 lbs.

Net Price . . . . . **$59.**

MODEL 230-X. Same as above but with dual primary winding for either 117 or 230 volt 50-60 cycle input . **$65.**

A.C. line cords for above supplies, with fuse, ready to plug in. Specify for 117 or 230 volts, each . . . . . **$8.**

8 ft. 10 conductor cable with pre-wired plug for connecting A.C. supply to transceiver, each . . . . . **$6.**

relay draws very little current, tapping into the car radio line will not matter, regardless of which side the car radio fuse is on.

(F) **Speaker Connections.** The two conductor lead coming from the Jones plug goes to an external speaker with 3 to 4 ohm voice coil. This speaker may be one already installed in the dash of the car or under the dash, and a selector switch may be installed to switch the speaker over from the car radio to the transceiver. An easier arrangement, however, is to install a 3 x 5 in. speaker inside the transceiver. The 500-C provides a mounting place on the left side, with terminal lugs on top of the chassis for connection to the speaker. One side of the speaker voice coil connects to the insulated terminal, and the other side connects to the ground terminal.

VOLTAGE REGULATION, MOBILE OPERATION

In D.C. to D.C. converters designed for mobile operation of Transceivers, it is important to note that output voltages will be related directly to the D.C. input voltage. The Swan model 14-117 supply is designed so that when input voltage is 13.5 volts, output voltages will be at nominal ratings, the same as with 117 volts A.C. input. Therefore, when Transceiver Tuning is performed without the engine running, it must be recognized that operating voltages will be considerably lower than normal, and meter readings will be less than with the engine running. In some cases, input voltage without the engine running may be as low as 11.5 volts, resulting in still lower meter readings. If the D.C. supply were designed to deliver normal output voltages at 11.5 or 12 volts input, then they would be dangerously high with the engine running.

The wire size and length of run from the battery to the 14-C Converter is also an important factor governing output voltage from the power supply. The voltage drop across these leads should be kept reasonably small. 10 gauge wire is supplied with the 14-C Converter, and is heavy enough for average runs of 3 to 4 feet. For longer runs it would be advisable to use 8 gauge, while for trunk mounted power supplies 6 gauge or even 4 gauge is recommended. It should be noted, however, that the really important factor in determining wire size is how much input voltage is delivered to the 14-C module during average voice modulation, when some 16 to 18 amperes are being drawn through the wire. In TUNE position considerably more current is drawn, as much as 35 to 40 amperes, and the voltage drop may be quite high. However, this is not a particular handicap; in fact, there is a definite safety factor in having a rather poorly regulated input which drops when you switch to TUNE. There is no reason to be unduly concerned about this drop, since the electrolytic capacitors in the power supply have ample storage capacity to provide good dynamic regulation during voice modulation.

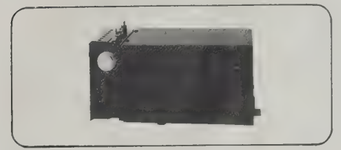
To summarize: The best way of determining if the battery leads are large enough is to measure input voltage at the 14-C terminals while voice modulating. If the voltage drops less than 1/2 volt when speaking normally into the microphone, the leads are heavy enough. If the drop is more than 1/2 volt, the leads should be larger. Finally, do not expect full operating power unless the engine is running, and the generator is charging properly.

POWER SUPPLY WARRANTY POLICY

The normal guarantee on your Swan power supply is for a period of 90 days from date of purchase, and covers all components, material and workmanship. In the case of transistor failure, however, the warranty on them will be void if inspection proves that high transient voltages from the automobile were responsible. We will do all in our power to be fair and just in this determination. The warranty card must be filled out and mailed to the factory within 10 days from date of purchase. Do not ship a unit to the factory for servicing without prior authorization. Check with your dealer first, as he may be in a position to handle the service work more quickly. This warranty is void if the equipment has been misused or damaged.

POWER SUPPLIES FOR SWAN TRANSCEIVERS

Models 240, 400, 250 Series, 350 Series, and 500 Series.
Also 300 Series and 400 Series Commercial Models.



COMPLETE 12 VOLT D.C. SUPPLY

MODEL 14-117

Consists of a 117-X A.C. supply and a 14-C D.C. Converter. For 12-13.5 volt mobile or portable operation. Includes 8 ft. cable and plug pre-wired for connection to transceiver, primary cables, circuit breaker, and mounting hardware. 5 in. wide, 5 in. high, 12-1/4 in. long. Weight: 16-1/2 lbs.
Net Price . . . . . $118.

MODEL 14-230. Same as above but with 230-X A.C. unit.
Net Price . . . . . $124.

Model 14-117 and 14-230 D.C. supplies will operate on A.C. input by detaching the 14-C unit and attaching an A.C. line cord, thus providing added versatility. 117 volt and 230 volt A.C. line cords available at $8 each.

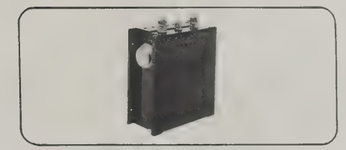
COMPLETE MATCHING A.C. SUPPLY

MODEL 117-XC

Consists of a 117-X power supply in a cabinet which matches Swan transceiver. Includes speaker, phone jack, and indicator light. Come with A.C. line cord, and power cable ready to plug into transceiver. 8 in. wide, 5-1/4 in. high, 11 in. deep. Weight: 21 lbs.
Net Price . . . . . $95.

MODEL 230-XC. Same as above but with 230-X supply for dual 117 or 230 volt A.C. input. Comes with 230 volt line cord, unless otherwise specified.
Net Price . . . . . $99.

Model 117-XC and 230-XC A.C. supplies will operate on 12-13.5 volts D.C. input by attaching a 14-C Converter Unit in place of the A.C. line cord, thus providing added versatility for portable or emergency operation from a 12 volt battery.



D.C. CONVERTER MODULE

MODEL 14-C

Transistorized Unit attaches to 117-X or 230-X power supply, converting them to 12-13.5 volt D.C. input for mobile or portable operation. For negative ground systems. Includes cables, plugs, circuit breaker, and mounting hardware. Average current drain: 9 amps. receive. 22 amps. transmit.
Dimensions: 5 x 5 x 3-1/2 in. Weight: 2-1/2 lbs.
Net Price . . . . . $59.

MODEL 14-CP. Same as above but for positive ground system. Available on special order . . . . . $59.

BASIC A.C. POWER SUPPLY

MODEL 117-X

Operates with 117-volts, 50-60 cycle input. Supplies all voltages required to operate Swan transceiver. Does not include matching cabinet, speaker or cables. Average power consumption: 125 watts, receive; 325 watts, transmit.
Dimensions: 5 x 5 x 8-3/4 in. Weight: 14 lbs.
Net Price . . . . . $59.

MODEL 230-X. Same as above but with dual primary winding for either 117 or 230 volt 50-60 cycle input . $65.

A.C. line cords for above supplies, with fuse, ready to plug in. Specify for 117 or 230 volts, each . . . . . $8.

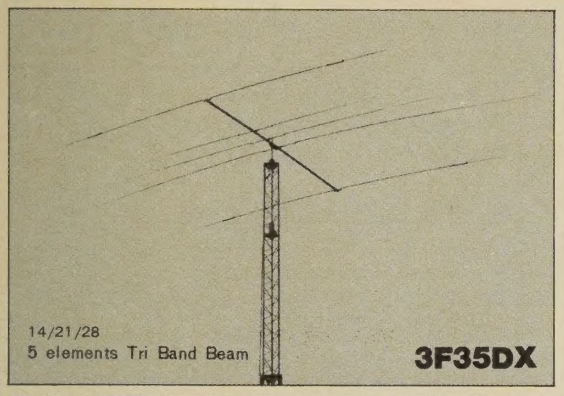
8 ft. 10 conductor cable with pre-wired plug for connecting A.C. supply to transceiver, each . . . . . $6.

TET®

ANTENNA SYSTEMS

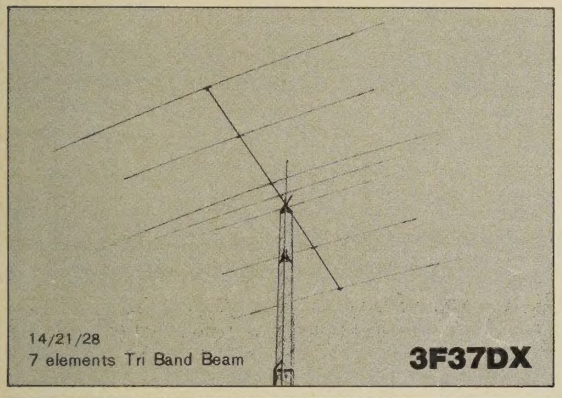
Multi Band Beam Super DX Series

NEW HIGH PERFORMANCE TRI-BAND BEAMS AS GOOD AS FULL-SIZE MONO BAND ANTENNAS.
These beams employ hybrid system which is a combination of separated full-size driven element for each band individually and Hi-Q trap parastic elements. These feature result high radiation efficiency, high power rating and excellent VSWR in entire band width.



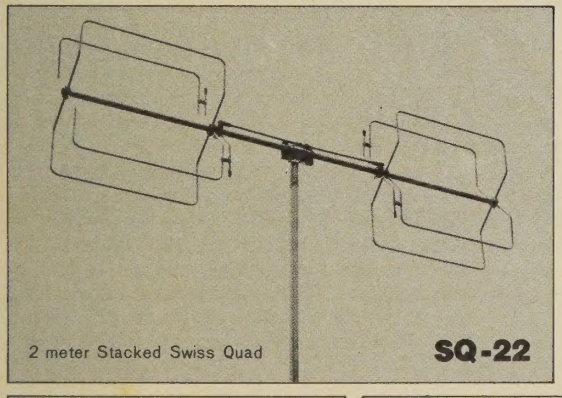
14/21/28
5 elements Tri Band Beam

3F35DX



14/21/28
7 elements Tri Band Beam

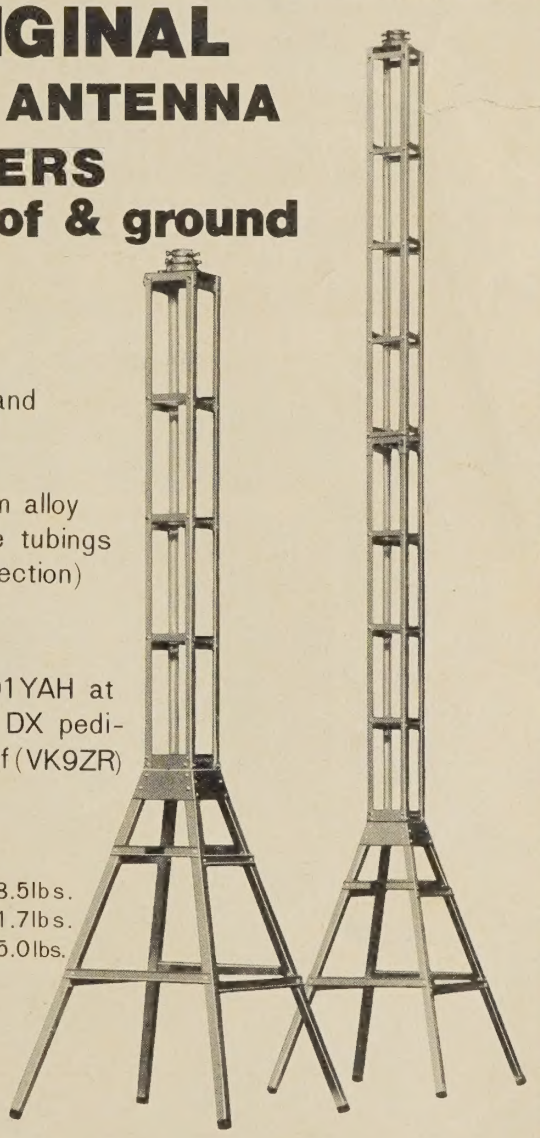
3F37DX



2 meter Stacked Swiss Quad

SQ-22

TET ORIGINAL
MODULAR ANTENNA TOWERS
Ideal for roof & ground mounts



- one man assembly and installation
- Light weight
- High quality aluminum alloy
- High stability (square tubings are used as base section)

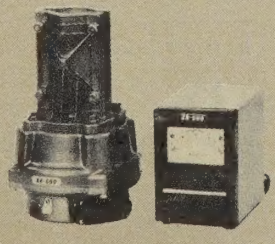
Has been used by JD1YAH at Ogasawara island and DX pedi-tionning at Melish Reef (VK9ZR)

Model	TE-35A	11.6ft.	48.5lbs.
Model	TE-55B	18.0ft.	61.7lbs.
Model	TE-75C	25.0ft.	75.0lbs.

KR-2000

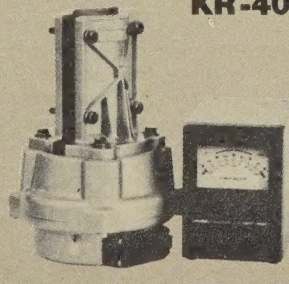
KR 2000—Designed for 360° rotation. Brake holds up to 10,000kg/cm (8680lbs/inch) torque.

KR-600



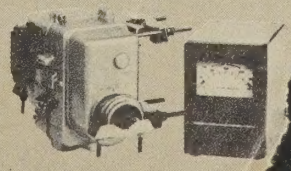
KR 600—Designed for360° rotation. Brake holds up to 4000 kg/cm (3470 lbs/inch) torque.

KR-400



KR 400—Designed for 360° rotation. Rated to support up to 200 kg or 440 lbs. Read out tolerance ±5 degree max

KR-500



KR 500—Designed for 180° rotation. Brake holds up to 2000 kg/cm (1750 lbs/inch) torque.

425 Highland Parkway, Norman, Oklahoma 73069
Tel. (405) 360–6410

TET U.S.A., INC.

CIRCLE 51 ON READER SERVICE CARD

GENERAL DESCRIPTION:

The Swan Power Supply systems are designed to provide all necessary voltages required by Swan Transceiver models 240, 400, 250 Series, 350 Series, and 500 Series. This also includes the 300 Series and 400 Series commercial models. The model 117-X basic A.C. supply is designed for an input of 117 volts at 50 or 60 cycles. The model 230-X is identical except that it operates with 230 volts AC input. By simply changing line cords, it will also operate on 117 volts A.C.

For fixed station use, the 117-X or 230-X is installed in a cabinet which matches the Swan transceivers. This cabinet also contains a speaker, phone jack, and indicator light. The complete combination is designated as model 117-XC or 230-XC. The A.C. line cord plugs into the back of the supply. In the 230-XC, choice of 117 or 230 volts input is made by selecting line cords.

12 VOLT D.C. OPERATION:

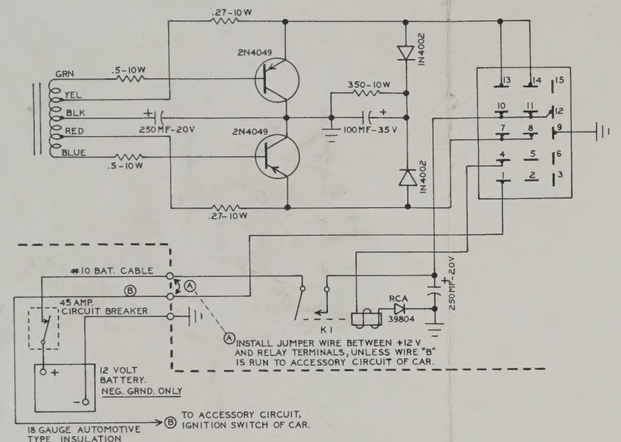
A D.C. Converter attaches to the back of the A.C. supply, and converts it for 12-13.5 volts D.C. input. The model 14-C D.C. Converter is for negative ground systems, the most common type. (For positive ground systems, the model 14-CP D.C. Converter is available on special order.) Combination of an A.C. supply with a 14-C Converter is designated as model 14-117 or 14-230 depending on which A.C. supply is used. The positive ground models are designated as model 14P-117 or 14P-230.

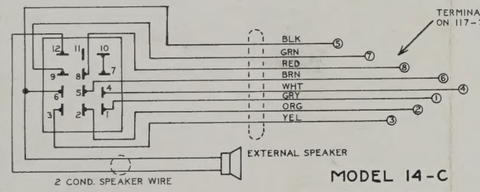
With the versatility of this power supply design, a number of advantages become apparent. The 14-117 mobile supply may be operated from a 117 volt A.C. line by detaching the D.C. Converter and plugging in an A.C. line cord.

The matching A.C. supply, model 117-XC or 230-XC, may be converted easily to 12-13.5 volts input by attaching the 14-C D.C. Converter to the back. This provides for portable or emergency operation from a 12 volt battery. There may also be times when it will be desirable to operate temporarily in an automobile, such as during a vacation trip, field day, or emergencies. The 117-XC can be set on the floor or front seat, and with the 14-C attached it becomes a 12-volt power supply, complete with speaker.

SPECIFICATIONS:

Power Rating: 250 watts average, 600 watts peak.
Input:
Model 117-X: 117 volts nominal, 50-60 cycles.
Model 230-X: 230 volts or 117 volts, 50-60 cycles.
Model 14-C : 13.5 volts D.C. nominal, 40 amps. peak.



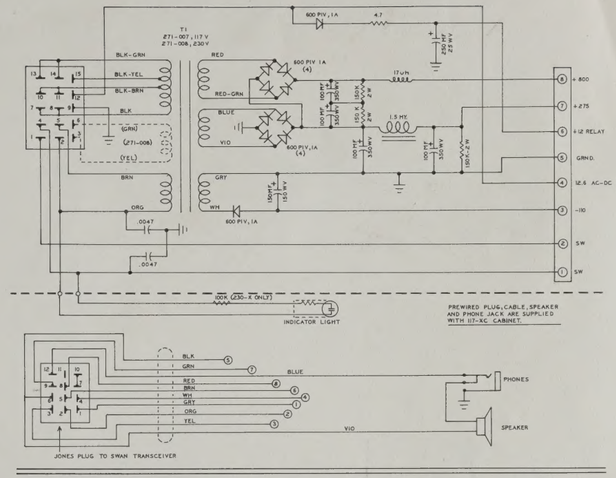


MODEL 14-C
D.C. CONVERTER

11-16-70

Output:
800 volts at 250 ma. average, 700 ma. peak.
275 volts at 150 ma. continuous.
110 volts negative bias, at 100 ma.
12 volts D.C. at 200 ma., relay supply.
12.6 volts A.C. at 5.5 amps. (with A.C. input only)
Battery Drain with Swan Transceiver
Rec: 3.5 amps. Trans: 16 amps. average, 40 amps. peak, plus 5.5 amps. for vacuum tube heaters.

The D.C. Converter uses two power transistors for switching in a flip-flop oscillator circuit. A large portion of the cost in this unit is in the transistors where no compromise has been made. They are rated at 60 amperes, with a 45 volt rating.



SCHEMATIC DIAGRAM

SWAN MODEL 117-X (230-X) A.C. POWER SUPPLY

MATCHING CABINET:

Ordinarily the A.C. supply will be purchased complete in a matching cabinet as either model 117-XC or 230-XC. However, in some cases an owner may have purchased a 117-X or 230-X basic supply only, perhaps in a D.C. supply combination, and he may wish later on to mount it in a matching cabinet. For this purpose the cabinet with speaker and cables is available separately. The basic A.C. supply mounts inside with three screws, and the pre-wired cable connects as shown in the schematic. Connections to the phone jack and speaker have already been made. Two leads from the indicator light must be run through grommet and soldered to the terminals provided at the bottom of the supply. Refer to the schematic for clarification. The A.C. line cord is also provided with the matching cabinet kit. These line cords are available separately also, and come normally wired and stamped for 117 volts. 230 volt line cords are also available on special order, or the 117 volt line cord may easily be wired for 230 volts by referring to the schematic. Note that the 230 volt line cord will work only with the 230-X basic A.C. supply. The 117 volt line cord will work with either the 117-X or 230-X.

ELECTRICAL DESIGN:

Both the A.C. and D.C. sections are conservatively designed for long, reliable service with a minimum failure rate. At the same time, they are designed for easy access and servicing for those times when it is required. Any component can be readily checked out and replaced in a matter of moments. The D.C. Converter and A.C. supply can be detached quickly from one another and tested individually, thus isolating the source of trouble.

The A.C. supply is quite conventional, using a silicon rectifier bridge for the medium voltage, and another for high voltage. The 117-X has a single primary winding for 117 volt input, while the 230-X has a pair of primary windings which connect in parallel for 117 volts, and in series for 230 volts. The switching is taken care of in the A.C. line cord plug.

MOBILE INSTALLATION
Model 14-117 or 14-230

12-13.5 volts D.C., Negative ground only. (For positive ground systems, the D.C. converter unit must be a model 14-CP , available from your dealer on special order.)

(A) Preliminary Steps. The D.C. electrical system in an automobile will sometimes generate high voltage transients. This can be caused by the starter motor, the alternator or generator, or loose wiring, and can represent a serious hazard to the transistors in your DC power supply. By selecting the best transistors available for the application, your Swan supply is capable of absorbing a good deal of abuse, but there is a limit to what even the best transistors can take and for this reason we strongly urge that you read the following notes completely, and follow them carefully. When this is done, you will find that your Swan power supply is extremely rugged and reliable. Field problems with the 14-117 supply are exceptionally low. But, first observe the following steps.

(1) Clean and tighten the battery terminals and clamps.

(2) Tighten battery cables where they attach to the starter solenoid and engine block.

(3) Inspect battery cables for corrosion or wear. Replace them if they look questionable.

(4) Check battery condition frequently. If the cells do not hold a similar charge or water level, replace the battery.

(5) Check alternator (or generator), and regulator connections for tightness. Also, primary ignition wiring, horn wiring, lights, etc.

(6) Measure the charging voltage from the alternator. Often the regulator is misadjusted, and the voltage setting may be excessive. It should not read more than 14.5 volts at normal engine speeds.

(B) Locate the power supply under the hood in a reasonably clear spot as close to the battery as is practical, and away from the engine. Particularly, keep it clear of the engine manifold, and away from the high tension ignition wiring. On many cars there will be a good spot at the front and to one side of the radiator. The power supply may mount in any position, and is quite well protected against normal splashing and dirt. The 117-X unit attaches to the car with three sheet metal screws. Remove the 117-X cover, and locate the three mounting holes. The 14-C Converter attaches to the 117-X with a machine screw.

In some cars it may be impossible to find room enough under the hood for the 14-117 assembly. If necessary, the 14-C and 117-X units can be separated 2 or 3 feet, and connected electrically with appropriate Jones plugs. 10 gauge wire is then required between terminals.

In other cases, it may be advantageous to install the 14-117 under the dash, or in the trunk of the car. Heavy battery leads with adequate automotive type insulation must be used. For trunk mounting, at least 6 gauge cables are recommended. In all installations the circuit breaker must be mounted close to the battery. Never run a long cable from the hot battery terminal to the power supply without a fuse or circuit breaker close to the battery. Failure to observe this rule will result in a serious fire hazard!

(C) Connect a cable from the hot battery terminal to the circuit breaker, keeping this cable as short and direct as possible. Then connect a cable from the circuit breaker to the +12 post on the 14-C Converter unit. Next, connect a cable from the negative post of the 14-C unit to the ground terminal of the battery. If possible, drill and tap a hole in the battery post for a contact stud. The more directly the cables are connected to the battery, the less chance there will be for voltage transients to reach the transistors.

(D) Run the 10 conductor power cable from the transceiver to the power supply and connect by color code as illustrated in the schematic diagram.

(E) There are two ways of wiring the relay circuit in the 14-C Converter. The simplest method is to connect a wire jumper from the relay terminal post to the +12 terminal on the 14-C . These posts are just an inch apart, and an 18 gauge bare jumper is sufficient. However, when connected this way, it will be possible for anyone to turn on the transceiver at any time, and for the transceiver to be accidentally left on, running the battery down.

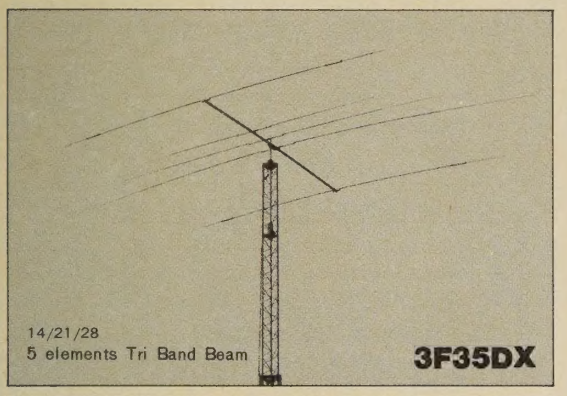
The second wiring method provides for connection to the accessory circuits of the car, so that the ignition key is required in order to turn on the transceiver. To do this an 18 gauge insulated wire must be run from the 14-C relay terminal to the accessory circuit under the dash of the car. This wire may be run alongside the 10 conductor power cable which goes to the transceiver. The accessory circuit will be found on one terminal of the ignition switch. Your service garage can be helpful in locating this. Otherwise, it may be easier to locate the 12 volt input line to the car radio, and splice into this line. Since the 14-C

TET®

ANTENNA SYSTEMS

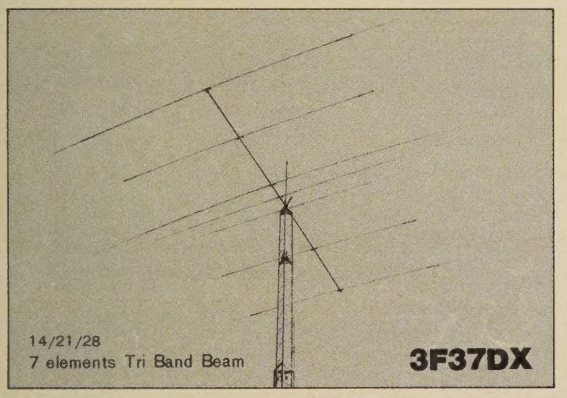
Multi Band Beam Super DX Series

NEW HIGH PERFORMANCE TRI-BAND BEAMS AS GOOD AS FULL-SIZE MONO BAND ANTENNAS.
These beams employ hybrid system which is a combination of separated full-size driven element for each band individually and Hi-Q trap parastic elements. These feature result high radiation efficiency, high power rating and excellent VSWR in entire band width.



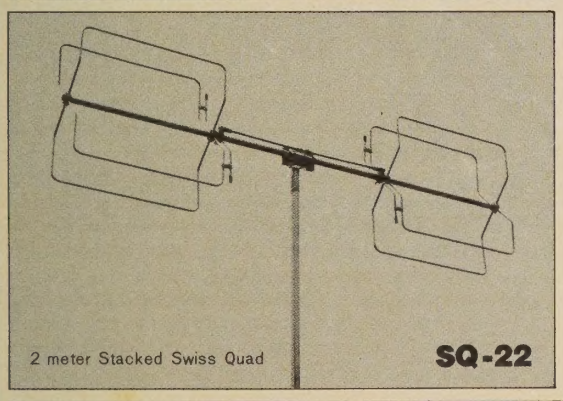
14/21/28
5 elements Tri Band Beam

3F35DX



14/21/28
7 elements Tri Band Beam

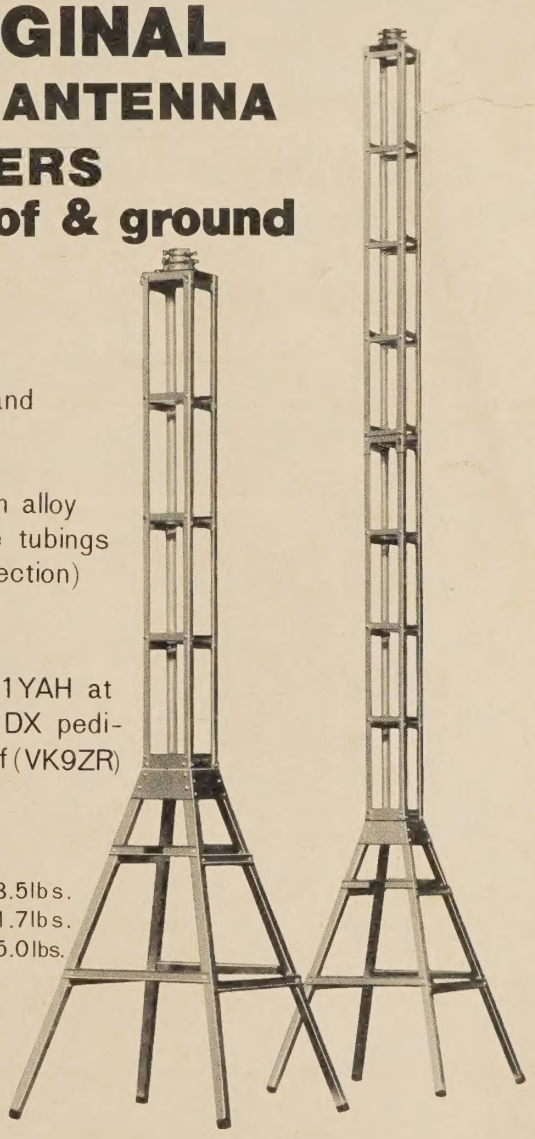
3F37DX



2 meter Stacked Swiss Quad

SQ-22

TET ORIGINAL
MODULAR ANTENNA TOWERS
Ideal for roof & ground mounts



- one man assembly and installation
- Light weight
- High quality aluminum alloy
- High stability (square tubings are used as base section)

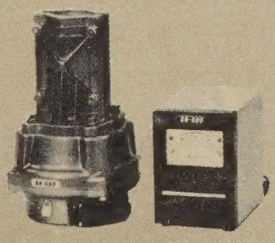
Has been used by JD1YAH at Ogasawara island and DX pedi-tionning at Melish Reef (VK9ZR)

Model	TE-35A	11.6ft.	48.5lbs.
Model	TE-55B	18.0ft.	61.7lbs.
Model	TE-75C	25.0ft.	75.0lbs.

KR-2000

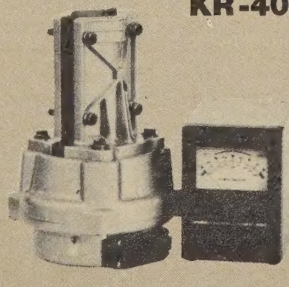
KR 2000—Designed for 360° rotation. Brake holds up to 10,000kg/cm (8680lbs/inch) torque.

KR-600



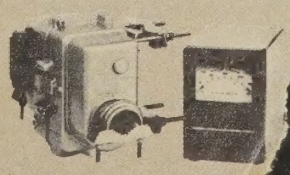
KR 600—Designed for360° rotation. Brake holds up to 4000 kg/cm (3470 lbs/inch) torque.

KR-400



KR 400—Designed for 360° rotation. Rated to support up to 200 kg or 440 lbs. Read out tolerance ±5 degree max

KR-500



KR 500—Designed for 180° rotation. Brake holds up to 2000 kg/cm (1750 lbs/inch) torque.

425 Highland Parkway, Norman, Oklahoma 73069
Tel. (405) 360—6410

TET U.S.A., INC.

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20M — 13.8-16.0 MHz
40M — 6.0-8.3 MHz
80M — 3.0-4.5 MHz
160M — 1.8-2.4 MHz*
*in lieu of 10M band on Model Astro 151

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